

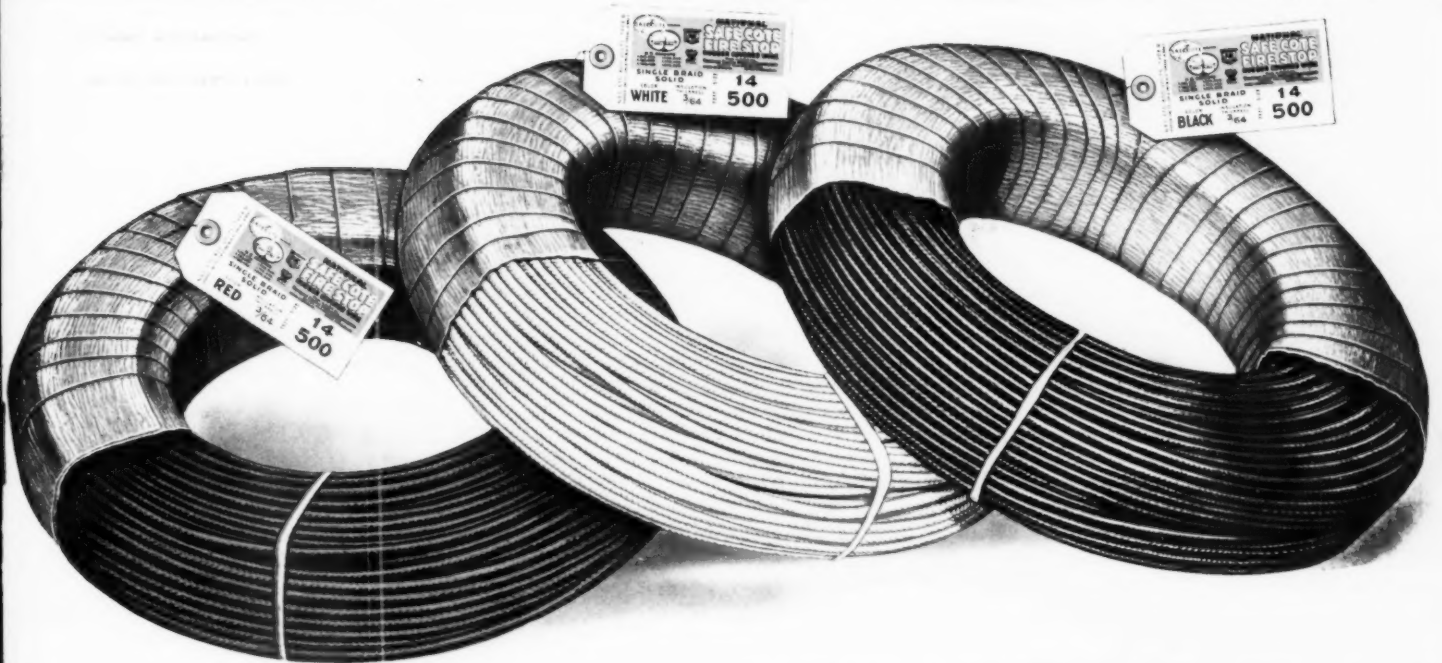
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May
1934

Electrical Contracting

With Which Is Consolidated
The Electragist and Electrical Record



*The Commodity
of the Electrical
Industry*

NO.
14

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SANGAMO ELECTRIC COMPANY • SPRINGFIELD, ILLINOIS



VOLUME 33
NUMBER 7
In Two Parts
Part I

electrical contracting

WITH WHICH IS CONSOLIDATED ELECTRICAL RECORD

S. B. WILLIAMS, EDITOR AND GENERAL MANAGER

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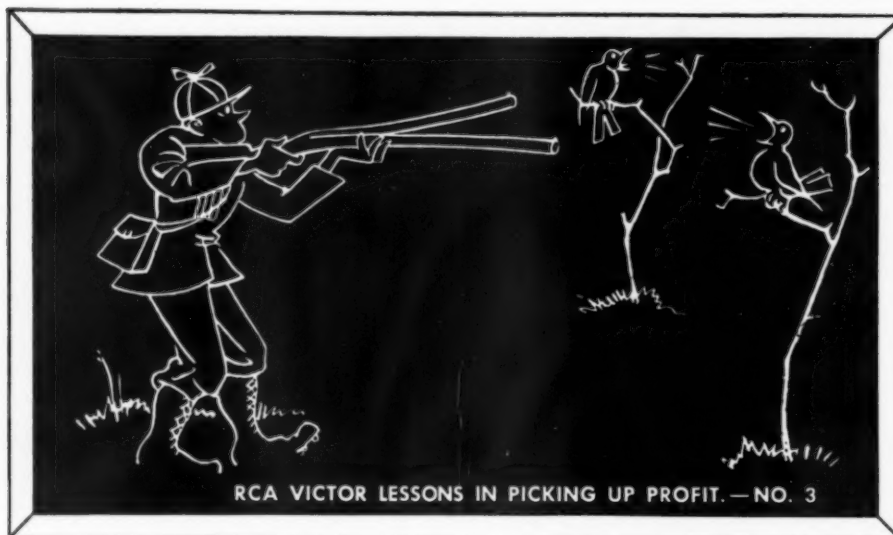
Code of Fair Competition of Electrical Con-
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U. S. DEPT. OF COMMERCE
BUREAU OF STANDARDS

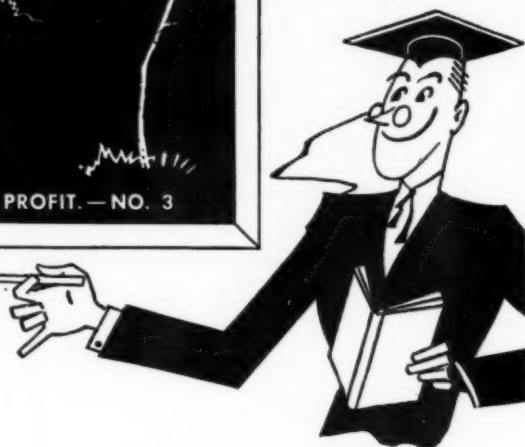
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- ☐ Simplified Antenna Systems
- ☐ Public Address

An Opportunity

WHO is the electrical contracting industry? Where is it located? What is its average volume of business? How many people does it employ? etc.

Some agencies, including ELECTRICAL CONTRACTING, have worked on these questions and have already compiled considerable data but the information has never been complete, because there was no way of insisting that each individual give the required data.

The electrical contractors' code, however, opens up a new opportunity to secure this data in rather complete form. One of the jobs of the Code Authority is to collect statistics and information about the industry.

The information so collected should be of tremendous importance to all branches of the electrical industry. In the first place, it should give to the industry the economic data necessary to do a proper marketing job through a channel which has never been utilized to its fullest advantage. It should enable manufacturers to set up sales programs, both nationally and locally, based upon a complete knowledge of the field. It should locate trading areas with a definiteness that would enable distribution policies and programs to be set up which should produce maximum results most economically. It should give to the contracting industry the full facts of its business which would enable it to negotiate with other branches of the industry and successfully secure for itself the opportunities to engage profitably in its rightful business.

THE electrical industry has never taken full advantage of the opportunity offered by the electrical contractor because the industry has never known him or understood him. The popular conception of the electrical contractor has been a small business man working with the tools, chiseling prices and devoid of selling practice. As a matter of fact, the electrical contracting industry is basically very much the same as any other mass industry. The

Electrical Contracting, May, 1934

electrical contracting business has been averaged by the numbers and not by the volume. Like all other mass industries, the bulk of the business is done by a small percentage of the total number. When we secure recognition of this fact, we should be able to get better marketing policies through this channel.

In the retail field distribution policies and margins are not made on the basis of thousands of one-man stores, but in the distribution through electrical contractors the policy has been rather in that direction.

THE National Association of Electrical Contractors has frequently been criticized as not being representative of the contracting industry and for that reason, has had considerable difficulty negotiating with the wholesalers, manufacturers and the utility industry. Its membership has been compared with the total number of contractors largely because there was no other data for making comparisons. With the statistics and information that the Code Authority should secure, a new basis of comparison should be available, namely, that of volume and character of business. With such data the national association should no longer be faced with the criticism that it is not representative. When that point has been established, the views of the contractors' association in the councils of industry will have considerably more weight and influence.

Representation of the industry, after all, must be on a basis of volume and character of business because that is the standard for permanency. The thousands that do the small volume of business represent a very unstable form of business due to many reasons, such as lack of sufficient capital, business training, selling ability, etc. The mortality in this group is exceptionally high. As a group, therefore, it can never be organized in a way that might become articulate. It is a group for which things have to be done rather than a group that does things for itself.

The gathering of these statistics is an opportunity of which full advantage should be taken.

notes:-

for wide awake contractors

Important selling opportunities are opening up every day -- for alert contractors. By showing that electrical efficiency is the road to profits, alert contractors are turning small orders into big jobs. Here are some pointers:



Note:--Obsolete wiring hinders efficiency, both in industry and commerce. New wiring layout can mean more efficiency -- profits. Sell the idea. Prove the point with dependable supplies from Graybar.



Note:--Better lighting increases production per man in office and factory. A good basis to sell lighting. Turn to Graybar for all kinds of up-to-date fixtures and glassware.



Note:--Check up on motors, too. Graybar can back you up with prompt service on full line of standard motors and control.



Note:--Interphones. Signals. All profitable items for the Contractor. Sell them as time and energy savers.

Graybar

Electric Company



Offices in 73 principal cities.
Executive offices, Graybar Building, New York, N.Y.

P.S.



P.S.--And more profits this year in Graybar household appliances. Complete line, standard merchandise, delivery service from stock, good profit margin.



VOLUME 33
NUMBER 7

electrical contracting

WITH WHICH IS CONSOLIDATED ELECTRICAL RECORD

MAY
1934

FILTRATION



The Argonne Drive was in full blast, and our old pal, Lieutenant "Red" Burke, was on the spot. He and his platoon lay in shell-holes about 100 yards in front of an especially poisonous German machine-gun nest. This "pill-box" was holding up the parade, because the units on Burke's

right and left couldn't advance till he knocked it off.

Some nests could be rushed from a distance, but not this one. Red wasn't afraid to charge, but too smart a soldier. He couldn't afford to fail, and knew that if he went in standing up, his mob might be wiped out, bringing a costly delay and unnecessary loss of lives in the other wings. So he dug into his bag of tricks and came up with a stunt he had learned at Scout School.

After the word was passed and everyone was ready, a single doughboy leaped up and dashed at full speed to a new hole 10 yards ahead. Another did the same thing a few moments later from the other end, followed, at odd intervals, by the rest, till all had reached the new line; the enemy gunners just couldn't get set to make a hit. When they grew panicky and swept the ground, the Yanks simply waited for a lull. In a few minutes they were close enough for the finale. Then a barrage of grenades, a bayonet party, and all the units on the half-mile front rolled untroubled toward the Rhine.

They called that *filtration*—filtering in by degrees

where a concerted rush is useless. It strikes me as a fine system for contractors to use in getting a foothold with new customers who prove hard to make. All of us have important prospects we've tried hard to capture, but who, for various reasons, are unresponsive or tied up in a way that makes us appear out of luck. Some get discouraged after making many bids without result, but the sticker will keep on searching for a way to get the new account on the books.

Filtration is the answer. Instead of trying to rush the cagey prospect off his feet with a frontal attack, Mr. Contractor can ooze in with a small trial job. This, well and quickly done, will secure the customer's attention and approval and work wonders in breaking down resistance on the next big installation.

The small wedge splits the big log that laughs at the axe.



Analysis of Electrical Contractors' Code

The code for the electrical construction industry which was signed by President Roosevelt on April 19 and became effective on April 30 has been written in two parts. One part is called Chapter I and the other Chapter VI of the Code of Fair Competition of the Construction Industry. Chapter I contains the general provisions applicable to all divisions of the construction industry. This part was signed by President Roosevelt January 31 and became effective on March 2. Chapter VI contains the provisions specifically applicable to the electrical contracting division. While Chapter VI has generally been referred to as the electrical contractors' code, the two chapters together constitute the code under which the electrical construction industry will be regulated.

These two chapters are to be found inserted in this issue. The following is an analysis of the provisions of this code made by the editors of Electrical Contracting to help its readers secure a quick understanding thereof

Who Comes Under Code

This code covers everybody who engages in the installation, repair, erection, maintenance or service of electric wiring, devices, appliances or equipment with the following exceptions:

1. Telephone and telegraph companies on their own system.
2. Power companies on their own systems, or with their own employees on customers' premises when necessary to render safe and continuous service (emergencies).
3. Fire and burglar signal protection companies on their own system.
4. Manufacturers in their own assembly work or repair and service work.
5. Repair shops in service and repair work only.
6. Industrial plants for the maintenance, servicing and repairing of existing installations and equipment, or the moving and relocation of such equipment within the plant or property when done by employees permanently and regularly hired for that work. By "permanent" is meant hired for at least six months by the owner or tenant within his own plant or property. All new work comes under this code.

Labor Provisions

In the absence of any area agreement the following provisions will be in force:

Wages

There are two wage provisions, one for skilled labor and one for other labor.

The minimum wage for skilled labor is 75 cents an hour.

The minimum wage for all other labor excepting accounting, office and clerical employees is 40 cents an hour.

The minimum wage for accounting, office and clerical employees is as follows:

Cities over 500,000 population	\$15.00 per week
Cities between 250,000 and 500,000 population	14.50 per week
Cities between 2,500 and 250,000 population	14.00 per week
Cities under 2,500 population	12.00 per week

These minimum rates of pay apply whether employees are paid on time-rate, piece-work or other basis.

Hours

The maximum hours are 40 hours a week and 8 hours in any day. This applies to any person working with the tools be he a contractor or an employee.

Exceptions

Remote projects and projects in localities with an insufficient amount of labor, 48 hours a week on approval of Planning and Adjustment Board.

Employees engaged in professional, executive or su-

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pervision work. These are defined as employees who do not work with the tools.

Employees in establishments employing not more than two persons in towns under 2,500 population that are not part of a larger trading area.

Emergency work involving breakdowns or safety protection.

Watchmen, but not in excess of 56 hours a week or more than 6 days a week.

Accounting, clerical or office employees. These are limited to 40 hours a week but the maximum hours may be averaged over a period of four consecutive weeks.

On government jobs (federal, state or local) where hours and rates of pay have been established employer will be relieved of code compliance.

Where conflicting labor agreements are in force employers will be relieved of compliance with code rules in conflict during the period of such agreement.

Conditions of Employment

No person under 16 years may be employed, or under 18 years where the work is hazardous or dangerous to health.

Not more than one helper may be employed for each three journeymen.

No employer may sublet the labor or any job to an employee or a laborer.

No employer may contract his labor to anyone subject to less stringent labor provisions.

Wages shall be paid in currency or check payable at par.

No rebates on wages are permitted.

Reasonable provisions shall be made for the safety and health of employees when at work. Standards for safety and health of employees are to be submitted to Administrator by Divisional Code Authority within three months after effective date of Code.

All employers must post in their place of business complete copies of labor provisions of Code.

Area Agreements

Truly representative associations or groups of employers and employees in any specifically defined area or locality, after proper notice and hearing, may by mutual consent establish for that area standards of hours of labor, wages and other conditions of employment. An area agreement by one division of the contracting industry, however, is not binding upon any other division of the contracting industry in that area.

To investigate complaints of failure to abide by the area agreement labor provisions a board of five shall be set up consisting of two representatives each of employees and employers and an impartial chairman. This board after hearing is to notify parties to the complaint of its findings and report them to the Administrator as a basis for action to enforce the Code.

Administration

There are two Code Authorities, one for the construction industry as a whole and the other for the

electrical contracting division of the construction industry.

The Construction Code Authority is representative of all sponsors of the construction code.

Its contact with any division of the industry is through the Code Authority of that division.

To finance it the Construction Authority may require the registration of all construction work in excess of \$2,000 value and charge a percentage fee, minimum \$2.00. The proceeds are to be apportioned between the Construction Code Authority and the Divisional Code Authority of the division from which the money is collected.

The Electrical Contractors (Divisional) Code Authority is composed of 10 members, to serve for a term of one year, seven of which are appointed by the Executive Committee of the National Electrical Contractors Association (N.E.C.A.) from the association's membership and three additional non-members. The non-members are to be selected by the Executive Committee of the association for approval by the Administrator.

Powers and Duties of Electrical Contractors' Code Authority

It may establish its own rules and regulations for the conduct of its affairs and delegate such of its powers as it may deem necessary to committees, agencies and representatives.

It shall, at its own instance or on complaint, investigate the functioning and observance of the Code, collect and compile statistics and other information.

It may make recommendations to the Administrator for modification to this Code.

It shall receive and as far as possible adjust all complaints as to trade practice between electrical contractors as come under this Code.

It may assess members of the electrical contracting industry an equitable and proportionate payment of the expenses connected with its operations.

N.R.A. Eagle

The Electrical Contractors' Code Authority shall cooperate with the Administrator in regulating the use of N.R.A. insignia solely by those electrical contractors who have assented to and are complying with this Code.

Rules of Fair Trade Practice

On all estimates and on all bills for services contractors must retain a record of the true cost on which the estimate or bill is based.

No contractor shall sell or quote at less than his individual cost and that cost must be determined in accordance with cost finding and estimating methods prescribed by the Code Authority.

The item of cost is defined as the sum of:

1—Materials;

2—Labor;

3—Job expense which shall include drafting, delivery of materials, transportation for employees, hotel expense, municipal permit and inspection fees, liability and compensation insurance and Code Authority fees chargeable to the job.

4—Overhead expense excluding depreciation on un-

used facilities, interest or indebtedness and investment, and selling expense. Estimating expense is not considered as selling expense for the purpose of determining cost.

The cost finding and estimating methods which shall be formulated by the Code Authority must be capable of use by all electrical contractors and be approved by the Administrator and when so approved all contractors must determine costs and make estimates in accordance with the principles thereof.

Should destructive price-cutting seriously endanger the maintenance of the Code or render it ineffective, the Electrical Contractors' Code Authority may, upon hearing, determine the lowest reasonable cost of installation work and thereafter contractors will not be permitted to sell below those costs.

Bids for temporary wiring shall be submitted only when quantities are distinctly stated unless made on a cost plus basis. Maintenance and cost of current are to be taken only on a percentage basis.

On all jobs exceeding \$250, or such lesser amount as may be determined by the local administrative committee, contractors shall file sealed copies of their bids together with any revisions thereof with the bank or trust company which has been approved as a depository by the Code Authority. Bidders are required to state in their proposals to the purchaser that such a sealed copy has been filed. Upon award of the contract or opening of bids, the local administrative committee shall open all bids and tabulate them. A copy of the tabulation will be sent to each bidder paying his share of the cost of preparing the tabulation with a maximum fee of \$1.00.

At the request of the bidder the local committee will select a committee of review of not more than three qualified persons, none of whom were bidders on this particular job, and at least one of whom is not a member of the N.E.C.A. In the event this committee of review finds that the code has been violated, its findings shall be reported to the local committee or the electrical contractors' Code Authority for appropriate action.

Electrical contractors shall uphold the enforcement of all public regulations applicable to electrical work and shall cooperate to prevent the installation of illegal or inadequate electrical construction work.

Contractors engaged as well in wholesaling, manufacturing or other businesses are to conduct their contracting business separately with such separate records and accounting as will enable them to conduct their contracting business in accordance with the provisions of this code.

Where it has been the generally recognized practice to conduct the business or any part thereof on the basis of printed price-lists, such contractors shall file with the Code Authority within five days after notice a net price-list, or price-list and discount sheet, showing current prices. Contractors may not offer any lower price than the one shown in the current price-list on file with the Code Authority.

Bidding

Competitive bidding means the submission of proposals by two or more invited persons to an awarding authority to do a specific program of work, furnishing a definite service or supplying material specifically re-

quired for a particular project at a stipulated price. This does not include furnishing quotations on standard products.

Bid peddling and bid shopping are prohibited.

Awarding authorities must not invite an unnecessary number of bids and only a limited number of alternate proposals shall be required in connection with any bid. No alternate proposal of any bidder, however, is to be considered by the awarding authority unless the privilege of alternate proposals is extended to all bidders.

The awarding authority is to make available to all bidders uniformity of information as to plans, specifications and other data.

The awarding authority shall not invite bids from anyone who has not demonstrated his technical and financial competence to perform the work. The ability to obtain a performance bond is not to be considered as the sole test of a bidder's competency.

All awards are to be made at bidder's original bid price.

Awarding authorities are to set a specific hour and place for receiving bids. Subcontractors' bids are to be in the hands of the contractor at least 24 hours prior to the time set for the receipt of that contractor's bid. All bids received after that time are to be returned to their makers unopened.

It shall be an unfair trade practice for electrical contractors to submit bids on any work after the closing time set for receiving bids or after other bids have been opened.

The awarding authority prior to the time set for receipt of bids shall not convey to any bidder information relating to the price of any other bidder for the purpose of influencing bids.

Collusion between the awarding authority and any bidder is prohibited nor may the awarding authority use any bid which is so unduly low as to indicate a mistake in estimating without first giving the bidder the opportunity to indicate the correctness of his bid through his cost sheets.

The awarding authority must make an award or reject all bids for the principal contract within 20 days after the time for receiving bids. Bids conditioned upon the award of a previous contract must be awarded or rejected within 30 days after the award of such previous contract. In case of rejection new bids shall not be called for substantially the same work until at least 90 days shall have elapsed from the date of rejection. Where there is a substantial change in plans and specifications or where it is apparent that there has been collusion new bids may be called for at any time.

The awarding authority may require bidders to name subcontractors whom they intend to employ.

Not only may the awarding authority not accept rebates, refunds, discounts or other special allowances or services from a bidder unless included in his original bid, but no electrical contractors may make any secret agreement with an awarding authority or purchaser concerning terms of payment, rebate or special conditions not included in his original bid.

Because owners do not come under any code no electrical contractor shall submit a competitive bid unless the owner or awarding authority agrees to comply with

the regulations of the code governing competitive bidding.

No electrical contractor shall change his bid except for variations in wages or material prices or substantial changes in original plans or specifications, and then only to an extent consistent with the actual changes or cost involved.

Review of Code Authority Acts

Appeal from any action of the Code Authority may be made to the Administrator who may require such action to be suspended to afford an opportunity for investigation of the merits of the action and further consideration by the Code Authority.

Planning and Adjustment Boards

A National Construction Planning and Adjustment Board is set up for the entire construction industry consisting of 10 persons nominated by employers and 10 by employees, together with a disinterested chairman

selected by the Administrator. This Board, which may set up regional planning and adjustment boards, has broad powers. It is charged generally with the responsibility of developing goodwill policies and relationships between employers and employees and specifically, upon consent of all parties, settle differences that may arise regarding hours, wages and conditions of employment either within a division of the construction industry or between divisions of the industry. While this appears to overlap the functions of the area agreement boards, the code states that nothing in the section relating to the powers and duties of the planning and construction boards is to be construed as preventing employers and employees in any division of the industry from submitting their differences relating to hours, wages and conditions of employment to their area agreement boards except that the fact and determinations of such boards are to be submitted to the National Planning and Adjustment Board for its information.

Work of Local Associations to Eliminate Trade Abuses

IN addition to the national conferences being held by Joint committees of the National Electrical Contractors' Association, National Electrical Manufacturers' Association and National Electrical Wholesalers' Association, many local chapters of the National Electrical Contractors' Association have been holding conferences with local wholesalers for the purpose of establishing better trade relations, classification of accounts and better margins.

In some instances there have been unsatisfactory conditions arise due to the practices of some wholesalers in connection with financing of contractors, preparation of estimates, granting of wholesale discounts to retail customers, etc.

The reports from the chapters generally indicate progress and the evident desire on the part of wholesalers to correct bad practices, to improve trade relations and to increase the contractor's opportunity to do business.

In order to find out exactly what was being done in different localities, ELECTRICAL CONTRACTING wrote to several local chapters of

the National Electrical Contractors' Association for information. Following is a brief resume of such activities as reported by the chapters:

Louisville (Ky.) Electrical Contractors' Association: Contractors successful in having the wholesalers publish price-sheets for the contractors and industrials. The wholesalers maintain the industrial price sheet 100 percent.

San Francisco (Calif.) Electrical Contractors' Association: After several meetings the electrical contractors and wholesalers were able to arrive at a trade classification which contains the type of firms allowed to buy at dealer's prices, another type allowed to buy at trade prices, and all others at retail prices. Several discussions have also been held regarding the amount of differential. Contractors have also put into effect the national policy of buying only through recognized channels of distribution, namely, from manufacturer to jobber, to contractor, to consumer.

Milwaukee (Wis.) Chapter: Meeting held with a jobber representative

but nothing definite could be worked out in view of the code for wholesalers not having been passed as well as the electrical wholesalers' code. The opinion was expressed that upon obtaining a code many unethical practices on the part of jobbers would be eliminated. When the code is signed covering the electrical wholesaler a series of meetings are to be held requesting the adoption of ethical actions by all local jobbers.

Tampa (Fla.) Chapter: The jobber situation in this district is very satisfactory inasmuch as all the jobbers cooperate with the contractors 100 percent, which is due to the efforts on the part of the local contractors' association.

Baltimore (Md.) Chapter: The jobbers' committee of this chapter has had one meeting with the jobbers' association, and at this meeting the problem of jobbers selling to industrials was gone into thoroughly, but no decision made. It was stated that the jobbers realize that there should be a differential of at least 25 percent between the prices on materials to industrials and to contractors.

Detroit (Mich.) Chapter: Considerable headway has been made in the matter of a differential for the electrical contractor, but believe that the manufacturer should be sold on this matter of differential. Unless the manufacturers get behind this proposition and discontinue sending price-lists to any and all prospective users regardless of size or purchasing power, nothing can be accomplished by the jobbers and electrical contractors.

Spokane (Wash.) Electrical Contractors' Association: Contractors have requested wholesalers to refrain as far as possible from selling industrials. They do not wish them to discontinue selling to power companies, railroads, Federal or State governments, but believe that the smaller purchases of above units should be handled by a contractor. Wholesalers have agreed to part of the requests and continue to work with the association towards the elimination of as many direct sales as possible.

St. Louis (Mo.) Chapter: Through the efforts of the contractors, the electrical wholesalers segregated and listed the utilities and industrials whom they felt purchased in sufficient quantities to entitle them to the same discount the contractors received. Net price lists have been discontinued and catalogs carry list prices. Utilities and some industrials receive the same discount as the contractors, but there is a 20 percent spread between the prices that other industrials pay as compared with the contractor's prices.

Southeastern Industrial Chapter, Birmingham (Ala.): This chapter held a meeting with one of the district managers of one of the three large jobbers to write up a resolution, which when written, was given to each member to have his local jobber sign. These were then sent to New York City for use in negotiating with the special committees of N.E.M.A. and N.E.W.A. Copies were also submitted to the Jefferson County Chapter, the New Orleans Chapter and the Texas State Association with a request to follow the same procedure. The resolutions were signed by the jobbers in Virginia, North Carolina, South Carolina, Georgia, and Alabama.

Sioux City (Iowa) Chapter: Contractors have requested the jobbers

to refuse to extend courtesy discounts to employees of industrials and other firms with whom they do business, even though the request is accompanied with a buy-out order from the firm that the employee works for. Also to entirely eliminate retail selling of any merchandise, fixtures or appliances by wholesalers, and in return for this, local contractors agree to buy from the wholesalers everything which they stock.

Minnesota (Minn.) Electrical Council: After a meeting with the trade relations committee of the Minnesota Electrical Council and a committee from the electrical wholesalers, an effective working plan was developed as follows: Wholesalers will appoint a committee to work with its committee on all matters which may have to do with relations toward each other; policies of the wholesalers will be brought into line with recommendations the Council has made as follows: A satisfactory differential or price protection to contractor dealers on all materials sold to industrial consumer accounts; eliminate merchandise and appliance sales to consumers at wholesale price; control the sale of residential and commercial lighting fixtures to and through contractor dealers for resale at retail prices; greater credit restrictions on old and new accounts to prevent uneconomic competition and to fight unfair discrimination of manufacturers and others who sell to chain stores at prices below those current to wholesalers and contractor dealers.

Richmond (Va.) Institute of Electrical Contractors: Although repeated efforts have been made by the contractors to improve trade practices among the wholesalers, nothing has been accomplished. Several meetings have been held and a joint committee was appointed from the contractors and wholesalers to iron out the unfair trade practices.

Philadelphia (Pa.) Electrical Contractors' Association: A complete program for improving trade practices has been adopted by this association and during the summer of 1933 a committee held several meetings with both the jobber and manufacturer groups in Philadelphia in an effort to have them recognize the contractor's place in the industry. As a result of one such meeting a

letter was sent to the N.E.W.A. advising them of the action of the local group and asking that a differential of 20 percent for the contractor be established. On October 6, after contacting by letters and telegrams with manufacturers all over the country, a meeting was held in Philadelphia which was attended by nearly 100 manufacturers' and contractors' representatives. At the close of the meeting a resolution setting forth the contractors' position was presented to the manufacturers. The resolution stated that all sales should be made from manufacturer to jobber to contractor to consumer, and further stated that contractors are entitled to a differential of not less than 20 percent from the selling price at which all materials are sold to consumer, regardless of methods of distribution. On October 16 a letter was sent to all the chapters of the N.E.C.A. describing the activities of the Philadelphia association and asking that they attempt similar campaigns.

Madison (Wis.) Chapter: A committee of this chapter has been working on the jobber situation for the past several months and is beginning to show results. To supplement the work of the committee a letter was prepared and sent out by each member on his own stationery and mailed to local jobbers. This letter stated the position of the contractor-dealer and that unfair practices of trade relations should be eliminated. The local jobbers are beginning to realize that if they expect to continue to enjoy the patronage of the legitimate contractor-dealer, they will have to work with him and not against him.

Davenport (Iowa) Electrical Contractors' Association: One of the things accomplished by this association was the setting up of a list of industries which are entitled to buy direct because they regularly employ one or more qualified electrical maintenance men. A resolution was also passed last November in which it was stated that all sales should be made from manufacturer to jobber to contractor to consumer, and that the electrical contractors are entitled to a differential of not less than 20 percent from selling price at which all materials are sold to consumer, regardless of methods of distribution.

Renovizing with Light

by Dean M. Warren

General Electric Company, Nela Park Engineering Department
Cleveland, Ohio



Living Room:—The living room offers pictorial testimony of the transitional characteristic of lighting. By means of a few simple changes a more comfortable home-like environment is created. The ceiling fixture with its luminous balls of light is replaced by a five-light semi-indirect fixture of cream glass, while simple parchment shades, open at top and bottom, take the place of the heavy dark silk shades that once adorned the portables.

The addition of a new portable lamp provides another location for reading or sewing.



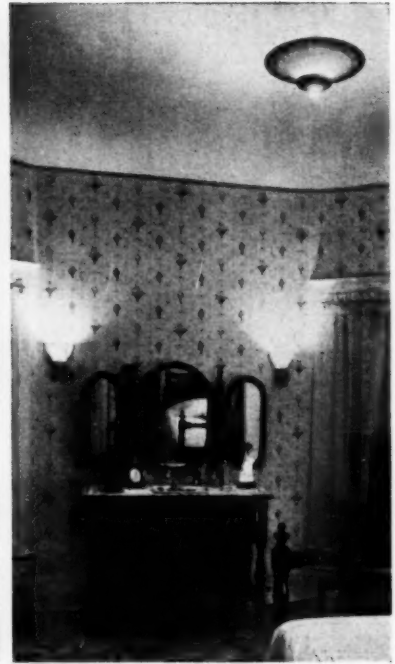
Electrical Contracting, May, 1934

The average home today is not well lighted. This is no doubt attributable to the fact that people have not thought of lighting as the dominant factor in human behavior and the one responsible for most of their usefulness, happiness and comfort.

Researches in seeing, however, have brought us many scientific truths that form the basis for a new living and working philosophy in which the conservation of human energy is all important. This new philosophy is finding a ready acceptance. Based as it is on the welfare of the individual, it is already bringing about a revaluation of lighting that will unquestionably result in raising lighting standards. Add to the utilitarian the aesthetic characteristics of lighting and you have an extremely salable commodity.

The average American home is a lighting prospect and the wealth of humanitarian data that science has made available makes possible a new sales approach that has universal appeal.

The following captioned illustrations present a pictorial story of how one home was completely refurnished with light and a better seeing environment created.



Bedroom:—Two frosted glass balls, lighted from within and attached to a double armed brass tube, served as the general lighting system for the bedroom. Supplementary lighting for reading was provided by an unattractive lamp pinned up between the beds and connected to the ceiling fixture by a long dangling cord. Substituting an indirect unit for the glass ball atrocity and providing an

adjustable floor lamp, equipped with three 40-watt lamps, creates a new and pleasing environment and promotes better seeing conditions. A lamp should be provided on either side of the dressing table mirror to aid milady in her make-up. The decorative dressing table brackets seen in the illustration are of warm tint and are each equipped with a 50-watt lamp.



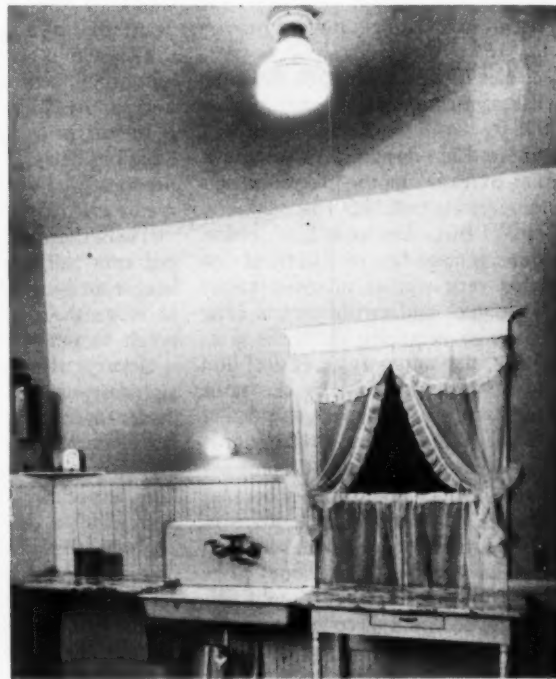
Bathroom:—The two-arm bracket, relic of early electric lighting, was used in the bathroom. This unit was located on the right side of the mirror; one arm being equipped with bare lamp, the other with plug for appliances. In

accordance with modern practice another outlet was made at the left of the mirror and twin brackets with built-in outlets were installed. Each socket was equipped with a 50-watt lamp to provide lighting for shaving or make-up.



Dining Room:—Both utilitarian and aesthetic features have been considered in relighting the dining room. The four-bulb fixture was first lengthened and shades added (middle). This was a decided improvement over the existing system but was finally discarded in favor of a simple

modern fixture, which cast the light predominantly on the table and was of a design to suit the room. A wall hanging was substituted for the decorative plate. The dining room table can now be used by the children as a study location.



Kitchen:—Glaring bare lamps quite often serve as the lighting system for the kitchen. In this particular installation a 50-watt bare lamp is used in the center fixture from which is suspended a 40-watt lamp on drop cord to serve as the sink lighting unit. At the right is what lighting can do. This is the same kitchen but careful attention to the

lighting has transformed it into a workshop where the housewife can pursue her regular tasks with a minimum of visual and physical fatigue. A 100-watt lamp in an enclosing globe serves as the general lighting system; supplementary lighting over the sink being provided by the newly wired fixture equipped with a 50 watt lamp.

Electrical Contracting, May, 1934

Criticise Trade Discounts

Editor,
ELECTRICAL CONTRACTING.
Sir:

The subject of trade discounts prevailing in the electrical industry is a subject that needs a lot of investigating and publicity that only publications like yours can give.

The great majority of codes covering manufacturing groups have some sort of scheme for setting up prices and trade discount schedules; and one only has to assemble an assortment of such schedules to realize that not much thought or analysis of actual merchandising problems has entered into their determination or there would not be such great diversity in discounts on similar lines.

For a starter, in one motor and fan manufacturer's price book you will find the following:

A list of electric motors ranging up to \$140.00 list.

User Net List. Dealer 17% discount.

A list of ventilating fans ranging up to \$154.00 list.

User Net List. Dealer 25% discount.

A list of furnace fans ranging up to \$38.00 list.

User Net List. Dealer 30% discount.

A list of radio motor-generator sets ranging up to \$24.50 list.

User Net List. Dealer 40% discount.

Here is a group of electrical apparatus very similar in manufacturing technic and with overlapping price range, requiring about the same type of sales and service effort; and in many cases all sold by the same dealer yet with a wide range in dealer discount. Which discount is right?

I picked this particular company for the above example simply because it happens to carry all these items in one catalog and many items in each group have about the same price range. Of course it has simply followed the accepted discount schedules which have been set up by four different manufacturing groups. How were these discounts determined and has any group at any time made a real scientific study and analysis of what the proper discount should be? I believe these discount schedules simply grew like Topsy.

Here is another group of discounts that will illustrate the point taken from a related item sales plan. User price is net list except that some quantity discounts also pass on to the user.

Motors and Controllers—17%.

Automatic Time Switch—8 $\frac{1}{3}$ to 25% plus quan. discount.

Industrial Heating Device—10 to 20% variable with quantity.

Instruments; recording and indicating—10.4 to 21%.

Renewal Parts—32.6%.

Small Transformer—20 to 27.3% variable with quantity.

Distribution Transformer—6.7%.

Dynamo Motor and Brush Leads—5%.

Next take the much discussed full range of motors. It is my belief that much of the trouble in this field is due to the attempt to cover a price range of a few dollars up to thousands by the same single discount. Naturally it is not enough for the dealer selling small individual motors with high selling and delivery cost and appreciable credit risk; while it invites price cutting by the dealer handling large industrial orders on practically a brokerage basis with credit risk a negligible factor.

Then there is our old friend "10 per cent". I think some lazy book-keeper originated this one. So easy to move the decimal point over one notch to get your "profit?"

Survey after survey shows average cost of doing various types of dealer merchandising business seldom run under 20 per cent; and still this 10 per cent discount prevails in many lines especially in the electrical industry.

Under the new codes the manufacturers have taken upon their shoulders the job of setting discount schedules right down the line from distributor to jobber and dealer and many of these code schedules show utter lack of understanding of the cost elements involved in merchandising.

The selling experience of most manufacturers has been along the line of contacting a relatively small

number of distributors, jobbers, dealers, or other manufacturer outlets with the volume per outlet comparatively high as contrasted with the jobber or dealer contacting a larger number of customers with small sales per customer and corresponding high selling cost.

If such a manufacturer bases a discount schedule on his own direct selling experience, it is naturally going to be entirely out of line with the conditions as they actually exist down the line of distribution.

Some of these new code discount schedules are very unfair; and I believe you can do a lot of good for the electrical industry if you get your staff busy and tabulate all the discount schedules you can procure—not only the dealer schedules but the jobber and distributor as well and give some of them the public ridicule they deserve.

I am sure you will compile a startling list of inconsistent figures that should set some of our manufacturers on the road to do some constructive thinking on this important matter. It looks to me as though we need a "Discount Code" for code price committees.

In conclusion I would say that my experience with both dealer and distributor problems would indicate the following important elements need careful study in determining a proper jobber or dealer discount schedule:

1. Where the price range is wide in any line like motors, some method of pricing or step discount should be adopted to take care of the basic merchandising fact that there is a certain amount of fixed expense in each individual sale regardless of dollar value. Sales under \$10.00 are usually hit hard by single average discounts that do not give extra compensation on these small orders. Variations in actual dollar value of sale should be analyzed before adopting a one-discount policy for an entire line.
2. Where stocking is necessary, extra compensation should be allowed to take care of investment, taxes, insurance, and depreciation. Turn

Electrical Contracting, May, 1934

over would have an important bearing on this item. Now that consigned stocks are on the way out under most codes, the manufacturer should adjust his discount schedule to compensate for this change.

3. Franchises should not be given indiscriminately and should have extra compensation for dealer or jobber doing a real job of sales promotion and advertising. Make it profitable for the company that really promotes the product and eliminate the price cutting jobbers and dealers who want to cut in on a line that someone else has developed. Just because a man is in business is no reason why he should get the maximum discounts on anything he buys when he is not regularly promoting the sale of that particular merchandise. Some requirements like carrying stocks, or promoting sales by salesmen, or advertising should be one of the essential requirements of maximum discounts with a lower discount for the occasional buyer.

So many manufacturers seem to forget that there is a practical limit to the amount of business in any district and that increasing the number of jobbers or dealers will not increase the volume in direct proportion.

I feel sure if you will dig into this subject of trade discounts and franchises, you will disclose some facts that will be of interest to the entire electrical industry.

GEO. P. SVENDSEN,
Boustead Electric & Mfg. Co.
Minneapolis, Minn.

Editor,
ELECTRICAL CONTRACTING.
Sir:

Are we dumb? We are. Here for years we have been getting 10 per cent on merchandise due to the generosity either of the manufacturer or jobber without any recourse. Under the standardized program of the NRA the contracting fraternity has an opportunity of slightly higher profits, but not much. The switch manufacturer's schedule gives a discount to the contractor of 40 per cent, his customer gets 35 per cent, the fittings manufacturer gives a maximum discount of 23 per cent, which tapers to 5 per cent in small quantities. The wire manufacturer makes no distinction in price between a full coil and a \$2,500.00 order.

Electrical Contracting, May, 1934

This is the way the contractors are treated by the people whom they maintain through their orders. Is this right? Before you answer, let me give you a concrete illustration in another line of business.

From a recent sales letter I quote verbatim one of the paragraphs illustrative of their method of sales:

"One merchant in a town was selling shovels at \$1.15 each. His retail competitor was asking \$1.75. The competitor bought all the other retailer had at \$12.00 per dozen. The competitor saw the other retailer a few days later and said—'You pulled a 'fast one' on me buying my shovels at \$12.00 per dozen. When I ordered more shovels I had to pay \$13.50 per dozen for them. Now I'll have to get \$1.75 each.' The competitor said—'That's fine and just what I expected. Now we will BOTH make a profit.'"

These goods cost the merchant \$13.50 per dozen. Did he sell them at 10 per cent advance? He did not. He sold them for \$21.00 per dozen and made his sale. To what item in the electrical industry can you point showing a percentage of profit com-

parable to the above? Whose fault is it? Who gets all the profit in the electrical industry? Certainly not the contractor on a 10 per cent margin, and who has to buy \$2,500.00 worth of wire to get a price. Who sells cast iron to the contractor at a maximum discount of 23 per cent and makes the difference for themselves? How can the switch manufacturer expect his customer to live on a 5 per cent differential?

We hear a great deal about fairness to labor; now it is time to have someone look out for the contractor. Why is the contracting industry such a poor money maker? Just for the reason outlined above, that the manufacturer and jobber won't give their customers a chance to make a profit, but want it all themselves. We believe your magazine, through its publicity department, could help us out of what might be termed an absurd business situation. We, as an industry, are as much entitled to a living as the shovel salesman. What do you think?

J. O. BLAND,
Bland Electric Company.
Louisville, Ky.

LEISURE TIME

Editor,
ELECTRICAL CONTRACTING:
Sir:

In your April number you seem somewhat perplexed as to what the electrician will do with his idle time if we go to the thirty-hour week, and you presume that he will create additional work for the contractor by his patronage of various enterprises.

Is it not logical to assume that he might extend his present activities that have been developed by the forty-hour week and his enforced idleness due to the depression?

The idle electrician has been most active during this time in making electrical installations on his own responsibility.

After having worked for a contractor for a period he gets to know his clientele and their requirements, which makes it easy for him on his day off to call on that person and suggest that he might do his odd electrical jobs at a reduced labor rate.

He draws the list of material required and has the customer purchase

it from some jobber at the same price the contractor would have to pay for it and at the same credit terms that the contractor enjoys.

When the contractor has a day's work, he drops his other job and works for him and then gets back to it.

If we work from 9 to 12 and 12:30 to 3:30 on the thirty-hour week, he will leave his job with the contractor, arrive at his own job at 4 and probably work there until 7 or 8 p.m.

The contractor pays him \$9.00 for his six hours and he will collect \$3.00 or \$4.00 from the other fellow, making his net wage about what he should earn.

With his Saturday and Sunday work he will probably start to work for the contractor completely tired out and ready for a good thirty-hour rest at one and a half dollars per hour.

We have always been taught that idleness is a vice. Maybe it is.

EDWARD J. WHITE,
Edward J. White Company,
Newark, N. J.

electrical contracting

With which is consolidated Electrical Record

S. B. WILLIAMS, Editor

THE CODE

THE Code of Fair Competition for the Electrical Contracting Industry has finally run the gauntlet and received the President's signature. It is a good code.

Many kinds of electrical work have been excepted from compliance with the code but they are fair exceptions. The work so excepted is not, generally speaking, the work of the electrical contractor.

The code has three main features: Regulation of labor, regulation of competition and administration.

It is the first division of the construction industry to secure a minimum wage for skilled labor. All other codes so far have had minimums for unskilled labor only. The electrical code having been used to break out the path, the other subcontracting divisions can be expected to follow.

The code is somewhat indefinite on the method of securing an area agreement, but it is expected that the Construction Planning and Adjustment Board will issue an interpretation or list of instructions shortly.

In the regulation of competition the code attempts to prevent the continuance of a great many trade practices that have been ruinous. The rules of bidding practice are most complete and specific. There is nothing in the rules but what the industry has tried to get for many years.

The real important part, however, is the administration; for unless the code is administered effectively, it will be of little good. The administration will be national and local. A good national Code Authority has been appointed but the success of its work will depend in a large measure upon the work of the local administration committees.

The proper enforcement of this Code is going to require money—more money by

far than the National Association ever had to work with. The budget will be kept as low as possible, in fact General Johnson is not permitting a large budget to any industry. This is not a racket but it takes money to secure compliance. The Code Authority has it within its power to refuse a Blue Eagle to any electrical contractor who has not paid his pro-rata share of the expense involved.

Here is the chance of the electrical contracting industry to end the career of the bid peddler, chiseler and below cost cutter. It can't be done, as in association work, by the few who are interested enough to work, it has to be participated in by everybody if it is to work as intended.

CODE INTERPRETATIONS

THE Code Authority for the industry will make interpretations of the Code of Fair Competition upon request. Subscribers to ELECTRICAL CONTRACTING may secure these interpretations by sending their questions to the editor.

The Code Authority will also release such other interpretations and explanations as it makes to ELECTRICAL CONTRACTING.

TRADE DISCOUNTS

THE dissatisfaction on the part of contractors with the trade discounts and particularly the practice of quoting the same or better prices to industrials is mounting. The new price schedules are meeting with particular criticism.

The position of the contractor is simple. He claims that as a seller he is entitled to a compensation for his work. So far, the contractor has tried to secure a policy from the manufacturers, feeling that an agreement arrived at through understanding would be fair for all. Unfortunately, these friendly negotiations seem to drag on for weeks and months without any particular progress.

The contractors know that they can get recognition from some manufacturers but so far they have preferred to work the matter out as a national policy. However, when as important a group as the Number 1 Association in New York City, composed as it is of many of the country's very largest operators, insists that the contractor be recognized to the extent of at least 10 percent, pledging themselves to cooperate in their

buying with such manufacturers as do so recognize them, it becomes apparent that the contractors are becoming impatient for action.

The real problem, of course, lies in the industrial market. It has been possible for the plant owner to buy almost anything as cheaply as the contractor could. In so doing the manufacturer, except on the few big orders, lost money.

The contractor refuses to be relegated to a contractor of labor only. He insists in contracting the job, the same as he does in a new building. Moreover, the contractor knows that the manufacturer can allow him a differential and save money.

BETTER MORALE

WITHIN the past few weeks there seems to be a new desire on the part of local associations to do something to create business. A number of instances have come to our attention.

A year ago conditions were such that hardly any association would attempt anything. These new signs of activity are encouraging, not so much for the business that might ensue, as for the fact that the improved morale is bound to be beneficial.

INDUCEMENT PRICES

AT a recent meeting of the sales committee of the Edison Electric Institute the chairman of the electrical range section of N.E.M.A. had the courage to remark that electric range selling so far had been on the basis of some special inducement instead upon the basis of creating a desire for electric cooking.

Unfortunately this criticism applies not only to electric ranges. It applies to almost all equipment, the sale of which has been left by the manufacturer to the utility.

The only reason why electric refrigerators are not sold that way is because the manufacturer developed the market and he could not afford to offer special inducements.

The power company has but one concern and that is to get load on its lines. It has no interest in a merchandising profit. What is the quickest way that load can be secured? The special inducement, be it a price reduction, or free wiring, or rental, or what, is expected to build load faster than selling. Therefore, special inducements.

Of course, in a case like an electric range where the public already has a satisfactory means of cooking, all of the inducements in the world are not going to move very many ranges unless the prospect is first sold on the method. In fact, special inducements can succeed only with a public that has first been sold.

The manufacturers of electric ranges have left the market development to the power companies and as long as they continue to do so, so long may they expect the special inducement to be the avenue to the market. The manufacturer must also remember that the utility offering special inducements does not encourage the other dealers to sell electric ranges.

If electric cooking is worth the price then it can be sold at a price that carries a merchandising profit and a fair price for wiring.

WHY LICENSED CONTRACTORS

IN order to help organized contractors combat the bootlegging of wiring ELECTRICAL CONTRACTING is compiling a list of reasons why the public should employ only licensed contractors. We have asked a number of contractors and inspectors to contribute their reasons. From these a compilation will be made and offered to the industry as a basis for publicity to the public.

LEADERS

RECENTLY we heard that one of our good friends in the electrical contracting business was elected mayor of an eastern city and we started to count up the number of electrical contractors whom we knew had held the job of mayor or some other important elective office. Quickly we counted up half-a-dozen mayors, more city representatives, heads of Rotary, Kiwanis, merchants' associations, commissioners, etc., without getting down to the fraternal orders.

And why not? There are brains and ability in the contracting business, plenty of them, in spite of the regard in which many in the other branches of the electrical industry hold the contractor.

The percentage of electrical contractors who are leaders in their community, we venture to say, stands well up with the figures from other trades.

\\ code chats ///

A MONTHLY DISCUSSION OF WIRING PRACTICE AND QUESTIONS OF INTERPRETATION, PRESENTED WITH A VIEW TOWARD ENCOURAGING A BETTER UNDERSTANDING OF THE NATIONAL ELECTRICAL CODE

CONDUCTED BY F. N. M. SQUIRES
CHIEF INSPECTOR, N. Y. BOARD OF FIRE UNDERWRITERS

FUSE IN GROUNDING WIRE

2003-a states that if the wires on a grounded system are apt to become reversed, the local inspector may require a fuse in grounded wire.

1. How would they be apt to be reversed?

2. Why would it be necessary to fuse the grounded wire if they got reversed?

This has happened on pole lines which run for long distances along streets and sometimes happens in service runs, etc.

If it did happen that the wires became reversed and the hot wire was mistaken for the grounded one the fuse would be placed in the grounded conductor and the hot wire would be connected through solid without fuse protection. Then, if a cross ground developed there would be no protection afforded.

SIZE OF SERVICE SWITCH FOR MOTORS

Is a 60-amp. 250-volt fused meter switch, used as a service switch, supplying one $7\frac{1}{2}$ h.p. motor (34-amp., 220-volt, single-phase, type S. C. R. with resistance starter) and one $\frac{3}{4}$ h.p. motor (5.5-amp., 220-volt, single-phase with across-the-line starter), the proper size switch to use to meet Code requirements?

No, the 60-amp. switch would not do. Rule 808-b, 2-z requires that a switch at a service supplying motors be such that the cutouts will accommodate fuses rated not less than is specified in the tables for motor branch circuit fuses (Table 6 or columns 6-7-8 of Table 1).

A service switch for the motors

mentioned above should be, therefore, of the value given in column 7 of Table 1 for a 34 amp. motor, plus the full load of the smaller motor. This would be 70 amp. plus 5.5 amp. or 75.5 amp. This would, therefore, require a 100-amp. switch.

SINGLE POLE PROTECTION FOR GENERATORS

Under 1002-b, single-pole protection shall be accepted for 2-wire D. C. generators if the protective device is actuated by the entire current generated, except that in shunt field. How is it the rule allows single-pole fusing for the mains (from generator) while 806-a requires a fuse in each ungrounded wire of a branch circuit?

As accidental grounds are not apt to develop in the short generator leads, there is little danger but that the generated current will follow the path provided by the generator leads. Therefore, if the path is broken by a protective device, in but one lead, all the current will be stopped. This might not always follow in the branch circuit case.

FUSE AS MOTOR DISCONNECT

Rule 1005 requires that every motor shall have an individual manually operable disconnecting means.

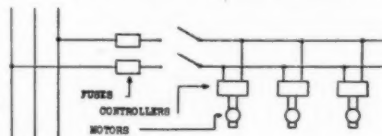
Would a cutout be considered a means for disconnecting a motor?

For a motor not larger than $\frac{1}{8}$ h.p. where the protective device (fuse or circuit breaker) is used as the controller, no other disconnecting means is necessary. In this case the fuse may act as both controller and disconnecting means.

DISCONNECTS FOR A GROUP OF MOTORS

Under 1005-a-4 a single switch will be allowed for disconnecting a group of motors if they are in a single room and within sight of switch.

Is the diagram below permitted?



Would it be permissible to use only one set of fuses for the group as shown in diagram, or would each motor have to be protected?

This comes under Section 808-c, Exception 2, and the above set up is permissible provided the fuses do not exceed 10 amp. (at 250 volts) and provided the total load on the circuit does not exceed 1320 volt-amperes and further provided none of the motors has a rating of over 6 amp.

APPLICATION OF MOTOR TABLES

Please explain the use of Table 1 on page 117 and referred to in 808-(b).

Are the first six columns for d.c. and the remainder for a.c.?

For instance, take a squirrel-cage motor (3-phase) that has a full-load running current of 20 amp. What size wire must be used and how is it obtained?

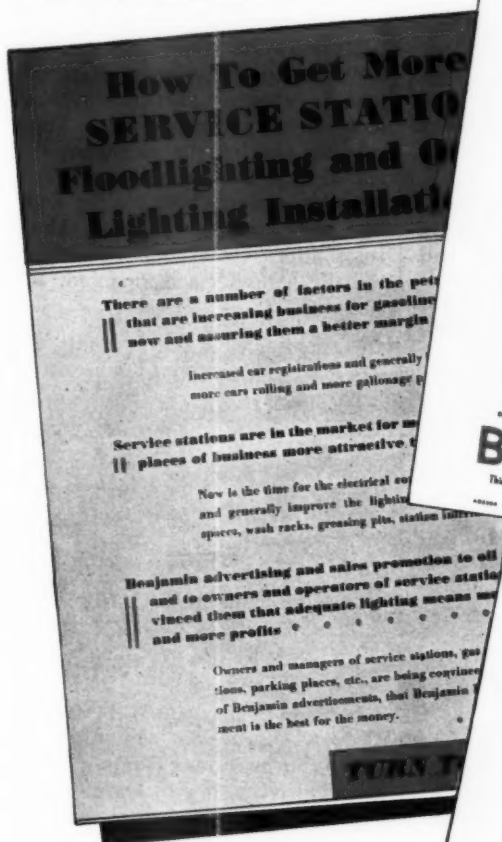
Why is it not figured out the same way as in the first six columns?

Assuming that we are dealing with motors with full load running currents of 20 amp., we run down column 1 to the number 20 amp. Motor

Electrical Contracting, May, 1934

ITS ON! The BENJAMIN Service Station Floodlighting Campaign

Full page advertising in color in National Petroleum News, Super Service Station and Service Station News to direct business to you . . . a portfolio of Selling Helps to show you how to get the jobs . . . a beautifully illustrated book to show the service station operator or manager how to brighten up the station to get more trade.

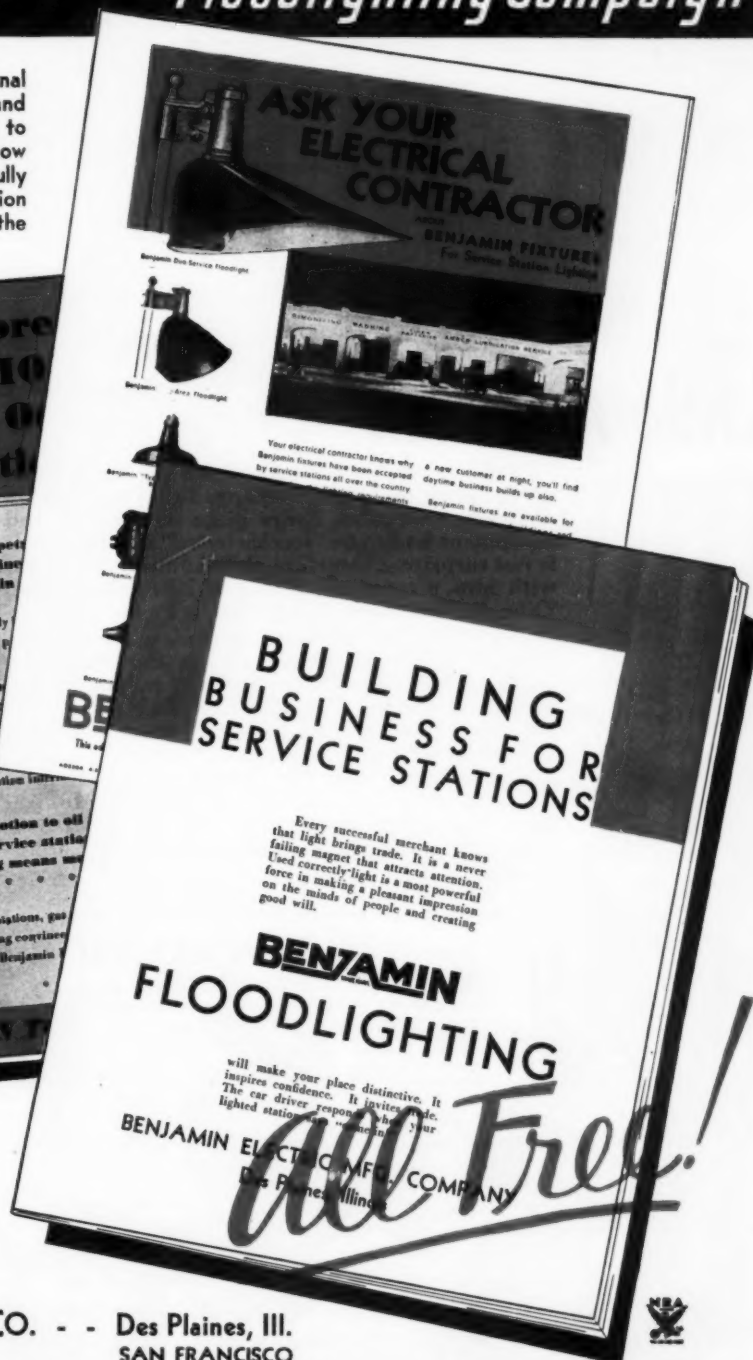


Now is the time to go after this service station lighting business. Our advertising says: "ASK YOUR ELECTRICAL CONTRACTOR." Write to us for your Benjamin Portfolio of Selling Helps, or ask your jobber's salesman to arrange to have a copy sent to you.

BENJAMIN ELECTRIC MFG. CO. - - Des Plaines, Ill.
NEW YORK CHICAGO SAN FRANCISCO

BENJAMIN FLOODLIGHTS

TRADE MARK



DUTCH BRAND FRICTION TAPE



The new, original DUTCH BRAND Friction Tape Dispenser... the modern way to sell more Friction Tape.

THE second Byrd Expedition to the Antarctic is the most thoroughly equipped that ever left on a great exploration. Every piece of material and equipment had to be "service tested" in advance. It is not surprising, therefore, that Admiral Byrd took with him, a supply of DUTCH BRAND Friction Tape, Rubber Tape and Soldering Paste.

DUTCH BRAND products are made to give "Extra-Service"... but all the words in the dictionary won't explain what "Extra-Service" means, half as well as a sample of DUTCH BRAND Tape or Soldering Paste placed in your hands... to test and try in your own way.

Just write us on your firm letterhead for samples... we'll send them to you quickly. No obligation. You won't be asked to buy, you'll learn to your own satisfaction what we mean by "Extra-Service"... at no extra cost.

DUTCH BRAND Friction Tape, Rubber Tape and Soldering Paste are sold by electrical jobbers everywhere.

VAN CLEEF BROS. Est. 1910
Manufacturers
Woodlawn Ave., 77th to 78th Streets
Chicago, U. S. A.

DUTCH BRAND SOLDERING PASTE

A scientific mixture—non-corrosive. Cleans as it works. Holds solder fast. Less paste required per job.



DUTCH BRAND RUBBER INSULATING TAPE

Fuses instantly without heat. Molds into one solid piece. It stretches without breaking because it contains more live, new rubber.



THE JUMBO PACKAGE
Contains 10 standard No. 8 rolls. The economical way for repairmen, electrical contractors and industrial users to purchase Friction Tape where individually cartoned Tape is not required.

of this rating whether a.c. or d.c. may have circuit wires of size No. 14 if rubber covered, as is shown by column 2, or of size No. 12 if of varnished cambric, or slow burning insulation as is shown by columns 3 and 4. Any motor whether a.c. or d.c. with a rating of 20 amp. must be protected by fuses or circuit breakers or thermal relays or cutouts of not over 25 amp. as is shown by columns 5 and 6. These protective devices must be in use during the running period of the motor although they may be shunted out during the starting period. It is considered that these devices give over-current protection for the wires of the motor circuit.

But now for columns 7, 8 and 9, we must apply the appropriate column to whatever particular type of motor we are dealing with. These columns give us the maximum size not of wire but of the fuses which must be in circuit both for the starting and running periods. These fuses afford short circuit protection to both the motor and the motor circuit.

SUB-FEEDERS

What is the definition of "sub-feeder" as used in the Code?

A sub-feeder is a branch feeder running from a feeder to a branch circuit distribution panel.

ATTACHMENT PLUGS AND FUSE PLUGS AS DISCONNECTORS

The Code requires that the disconnecting means for a motor shall have a continuous duty rating of at least 115 per cent of name plate rating of motor and be located within sight of the controller, or arranged to be locked in the open position.

Is this rating just for switches? I cannot see how it would also mean plug fuses or plug connectors as allowed in 1005-e because I never saw any that could be locked when in open position.

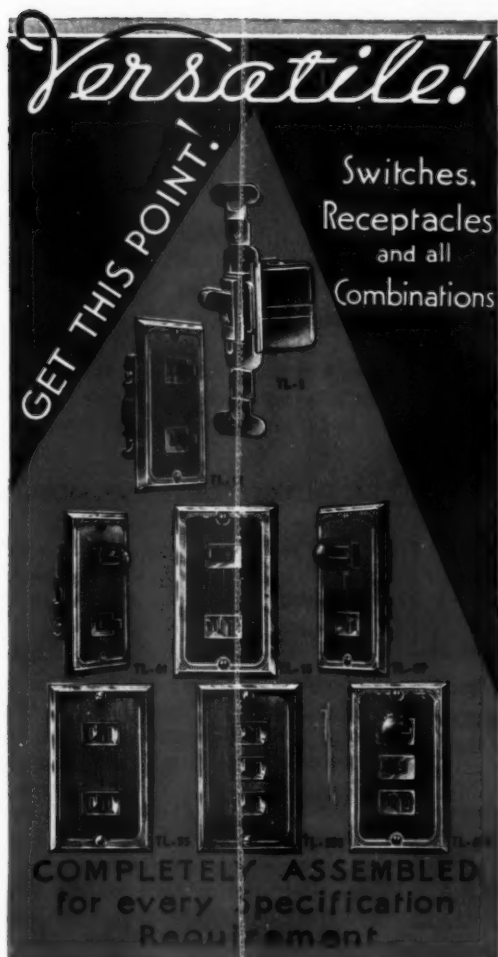
Any disconnect whether switch, fuse, attachment plug or circuit breaker shall have a rating of at least 115 per cent of the rating of the motor with which it is used.

A plug connector or a fuse can be considered as being of an indicating type because it is visibly evident that it is in the open position when the

See the DUTCH BRAND EXHIBIT at A CENTURY of PROGRESS • CHICAGO • 1934

ARROW

Takes the Wiring Job out of the OX-CART class



As new methods of "getting there" beat the old, the new standard line of TIMESAVER Devices adds to the ease and speed of wiring — heightens the attractiveness of your installations.

This line — for Every Wiring Convenience — is so condensed and versatile that 24 numbers are ALL you need for all specification requirements, including Plates. With these combinations there's not only a saving in investment, but LABOR is reduced to a minimum and your TIME-gamble is eliminated.

Besides economy of installation, its moderate cost makes TIMESAVER Line your PROFIT line today. You can purchase the Bakelite Type C Switch for the same price at which porcelain-based switches are sold. (Combinations are priced on an equivalently moderate basis).

The switches, receptacles and pilot lights are all assembled in compact Bakelite bases; all fit standard switch boxes. Switches are designed specifically for modern Type C lamp loads. Mechanisms are fully enclosed and sealed, dust-proof, in the small Bakelite bases.

Write for illustrated folder covering the 24 "TIMESAVERS". . . Ask also for proposition on unique Display Board — "The Wired Display House" for store display and demonstrating.

ARROW ELECTRIC DIVISION
THE ARROW-HART & HEGEMAN ELECTRIC CO. HARTFORD, CONN.

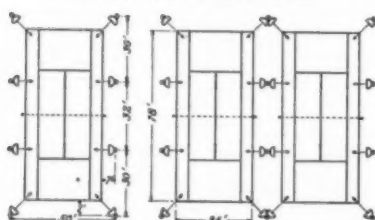
OUTDOOR SPORTS WILL BE POPULAR THIS YEAR—QUAD'S ILLUMINATING ENGINEERING SERVICE WILL HELP YOU SELL!

We are now receiving many inquiries for lighting information and layouts on Kitten Ball and Soft Ball Diamonds, Tennis Courts and Football Fields—There is great activity in these sports.

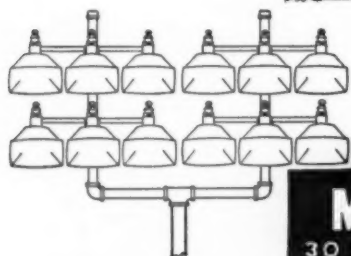
Are you getting this business—There's money to be made here—Perhaps you don't feel fully equipped to solicit this business—If not, let us help you.

Be sure to give your jobber's name when writing

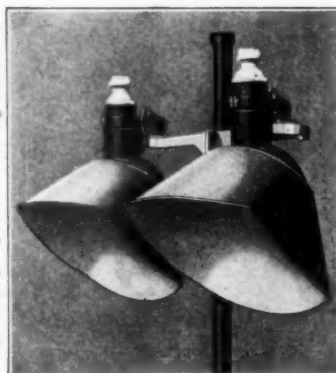
TENNIS COURTS



Tell us your problems and send sizes—Quad will give you detailed information and recommended layouts. Here are 3 typical layouts.



Bank of twelve Quad floodlights whose total weight is less than 150 lbs.

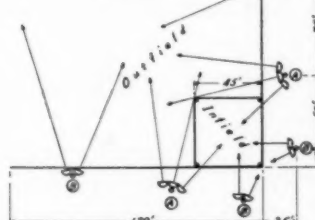


Bank of two floodlights made by clamping two single brackets back to back

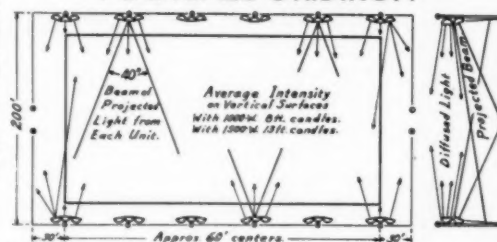
SOFT AND KITTEN BALL

- ① Poles with 1" 21C (Triple Floodlight) using 3-1000W lamps per pole
- ② Poles with 2" 21C (Single Floodlight) using 2-1000W lamps per pole

Total Kilowatts - 14.



FOOTBALL GRIDIRON



Quadrangle Manufacturing Co.
30 SO. PEORIA ST. CHICAGO, ILL.

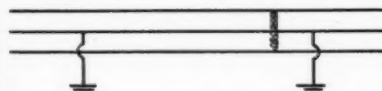
plug or the fuse is out. It can be "locked in the open position" when enclosed in a box which is capable of being locked.

WIRING SYSTEMS FOR AUTO-TRANSFORMERS

2001-b does not permit wiring systems taken from auto-transformers for any interior wiring systems, except as follows:

Unless the system supplied contains an identified grounded wire which is solidly connected to a similar identified grounded wire of the system supplying the auto-transformer.

I interpret it as per sketch, but it doesn't seem right as the heading above this rule says, "Ungrounded Systems and Circuits."



The heavy typed words, "Ungrounded Systems and Circuits" is not a heading for 2001-b but is the second class of unidentified systems and circuits which may be used by special permission of the inspection authority. The words quoted, therefore, belong to 2001-a, exception 2.

CAPACITORS

Why are Capacitors covered in both Articles 11 and 17 of the Code?

The text of 1101 indicates that the rules of Article 17 pertain to capacitors which are parts of devices made up into units, while the rules of Article 11 cover capacitors in general.

PROTECTION FOR 16 AMP. MOTOR

Under Table 1, referred to in 808C-1 could a 20 amp. fuse be used or a circuit breaker be set at 20 amp. to protect a motor that took 16 amp. at full load?

Are these rated high enough for starting?

For a motor of this capacity the motor running protection is to be fuses or a circuit breaker of not over 20 amp. capacity. These, however, would be shunted out during the starting period and the circuit would be protected during this period by protective devices back on the line at 50, 40, or 25 amp. as per columns 7, 8, 9, of Table 1.



Whether in the simplest or most complicated electrical installation, Youngstown Buckeye Conduit invariably produces unsurpassed results.

Buckeye
THE YOUNGSTOWN SHEET
AND TUBE COMPANY

Manufacturers of Carbon and Alloy Steels
General Offices - YOUNGSTOWN, OHIO

CONDUIT

BLACK ENAMELED - ELECTRO OR HOT DIPPED GALVANIZED

CONTRACTING news

INFORMATION OF INTEREST TO ELECTRICAL CONTRACTORS
CONSISTING OF ITEMS OF NEWS, SHORT ARTICLES, PRACTICAL
IDEAS, ETC., OUR READERS ARE INVITED TO CONTRIBUTE TO
THIS DEPARTMENT

CODE AUTHORITY ORGANIZATION MEETING

The first meeting of the Electrical Contractors' Code Authority was held in Chicago on April 27, 28 and 29. The meeting was devoted very largely to organization for the purpose of administering the code nationally and locally.

In addition to ratifying the minutes of the pre-organization meeting and the by-laws, the Code Authority agreed upon a budget, named committees, set up a plan of district organization, agreed on a set of instructions for local administrative work and voted to establish headquarters at the office of the National Electrical Contractors' Association in New York. The office of the chairman, L. E. Mayer, will be located at 569 W. Van Buren Street, Chicago.

The country will be divided into 12 regions. As far as possible, the chairman of each region will be a member of the Code Authority. The district chairmen appointed at this meeting are as follows: Region No. 1, A. J. Hixon, Boston; Region No. 2, J. G. Livingston, New York; Region No. 3, to be selected (this is the region of which Philadelphia is the market center); Region No. 4, W. W. Clark, Cleveland; Region No. 5, D. B. Clayton, Birmingham; Region No. 6, W. W. Ingalls, Miami; Region No. 7, L. E. Mayer, Chicago; Region No. 8, William Ritt, Minneapolis; Region No. 9, E. N. Peak, Marshalltown; Region No. 10, to be selected (this is the southwest area of which Texas is the major portion); Region No. 11, to be selected (this is the northwest area of Washington and Oregon with that portion of neighboring states that naturally

belongs to that trading area); Region No. 12, Lloyd Flatland, San Francisco.

Four committees were set up as follows: Executive Committee, L. E. Mayer, chairman, A. J. Hixon and E. N. Peak; finance committee, L. E. Mayer, chairman, W. W. Ingalls and J. G. Livingston; statistics and reports, L. E. Mayer, chairman, D. B. Clayton and A. Gogan; labor policy, L. E. Mayer, chairman, J. G. Livingston and A. J. Hixon.

The Code Authority voted that all members of local administrative committees and committees of review must be members of the National Electrical Contractors' Association with the exception of one member of each as required under the code.

GOVERNMENT ACTS TO PREVENT BID SHOPPING

In a general order to all Federal departments and construction agencies dated April 9 the Public Works Administration rules that contractors shall hereafter name their subcontractors at the time of submission of bid and shall agree, if awarded the contract, to accept those subcontractors. The order follows:

To All Federal Departments and Construction Agencies:

In order to minimize a rather common practice of subcontractors shopping on the part of contractors after the opening of bids, the following provision shall be inserted in all calls for bids and bid proposals on Public Works projects:

"Every contractor who bids upon a project financed in whole or in part by loans or grants from the PWA shall submit in a sealed envelope with his bid to the contracting authority the names of all subcontractors and their bids upon which his bid is based. The sealed envelope so submitted shall have on it the name of the contractor with the words thereon 'Bids of Subcon-

tractors'. Such submission shall be deemed to constitute an acceptance by the contractor, if awarded the contract, of the bid of each subcontractor. Any alteration therein, after the award of the contract, shall be subject to the approval of the contracting officer of the Federal Department or Agency concerned."

(Signed) Harold L. Ickes
Administrator

NORTHERN CALIFORNIA ORGAN- IZES FOR CODE ENFORCEMENT

The most serious and significant convention in the history of the organization was that of the Northern California Chapter, N.E.C.A., held at Sacramento on April 7.

An open meeting in the morning admitting anyone in the electrical industry began the convention. After roll call of members and non-members and a short talk from the president the latter announced the appointment of committeemen representing delegates from all sections of the northern part of California. These committees were then retired to a special committee session lasting all morning.

The afternoon session was open to contractors only and brought in reports of the committees and their recommendations. At 4:30 the meeting was thrown open to the industry again and was addressed by several important speakers.

Munson Dupre, assistant to George Creel, N. R. A. code enforcing authority and compliance chief for the Pacific Coast, was the first speaker. He sketched the governmental organization and its functioning to bring about compliance of the codes. He stressed the fact that organizations must be formed among members of an industry in order to make the codes effective.

Mano Zan, special representative of the contractors' license division of the state of California in charge of coordination of that department's activities with the N. R. A. code, was the next speaker. He placed the facilities of the state registrar of contractors and its department at the service of the association in the administration and operation of its code activities.

Ralph Bowdle of the same department, then discussed practical aspects of the operation of the Contractors License Bureau and some of the accomplishments of it in improving contracting conditions.

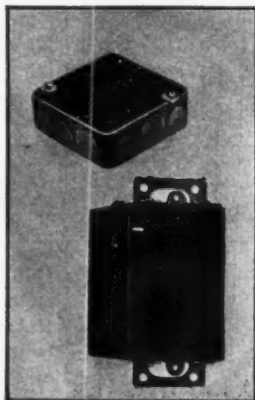
Fred Todt, San Francisco district



FOR LIFETIME PROTECTION USE G-E WHITE CONDUIT

G-E White Rigid Conduit is built to protect wiring systems permanently. Hot-dipped galvanizing (inside and out) and a super-coating of Glyptal (inside and out) resist rust and corrosion,

prevent the penetration of water, oils, acids and alkalis. Made of mild steel, G-E White bends, cuts and threads easily. The smooth Glyptal surface inside permits rapid wire-pulling.



G-E BOXES INSTALL EASILY

G-E Outlet Boxes are simple to install. Switch Boxes gang easily and securely. Pry-out knock-outs in sides and bottom are quickly removed OUTWARDLY. Available in either black enamel or galvanized finish for every requirement. For immediate delivery of G-E White and G-E Boxes, phone your nearest G-E Merchandise Distributor or write Section CCF-195, Merchandise Department, General Electric Company, Bridgeport, Connecticut.

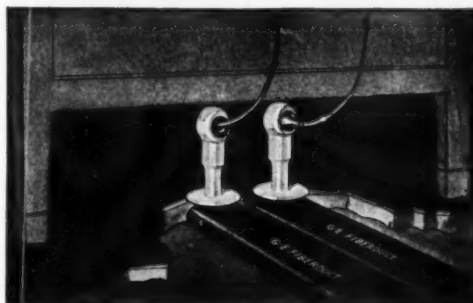
CONDUIT PRODUCTS



FIBERDUCT IS EASY TO INSTALL...TO ADAPT

Don't make a hard job out of an easy one. Use G-E Fiberduct. It's easy to install, easy to wire, is easily adaptable to additions or changes in positions of electrical outlets. Simple in design . . . no complicated parts. And it's safe and economical. Install Fiberduct

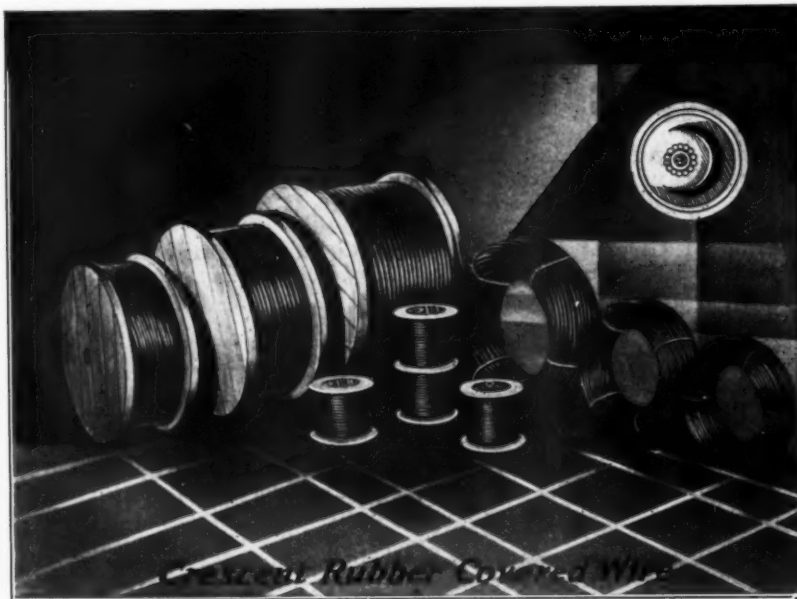
where a permanent yet flexible underfloor wiring system is required. For immediate delivery, phone your nearest G-E Merchandise Distributor or write Section CCF-195, Merchandise Department, General Electric Company, Bridgeport, Connecticut.



FIBERDUCT

GENERAL ELECTRIC

MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT



Whether it's

RUBBER COVERED WIRE VARNISHED CAMBRIC ARMORED CABLE

or any other
kind—

CRESCENT PRODUCTS A COMPLETE LINE

"Crescent" National
Electric Code Rub-
ber Covered Wire
and Cable.
Intermediate Grade
Rubber Covered
Wire and Cable.

"Imperial" 30% Rub-
ber Covered Wire
and Cable.

"Crescent" Lead En-
cased Wire and
Cable.

"Crescent" A. B. C.
Armored Bushed
Cable.

"Crescent" Lead Cov-
ered Armored
Cable.

"Crescent" Flexible
Metallic Conduit.

"Crescent" Varnished
Cambric Cable,
Lead Encased or
Braided.

"Cresflex" Non-Met-
allic Sheathed
Cable.

"Crescent" Flexible
Cords.

"Crescent" Parkway
Cables.

All kinds of special
wires and cables.

—just
be sure of
the highest quality
by specifying

CRESCENT

Why handle anything but the best when
the best is so easy to obtain?

Warehouse stocks and representatives
ready to serve you are in principal cities
everywhere.

45 YEARS OF KNOWING HOW IN
EVERY FOOT OF CRESCENT WIRE

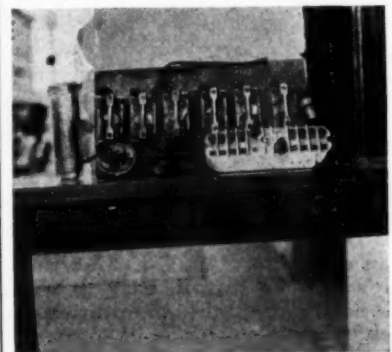
CRESCENT
INSULATED WIRE & CABLE CO. INC.
TRENTON, NEW JERSEY.

manager of the General Electric Supply Corp., extended the goodwill and support of the wholesalers to the chapter's program.

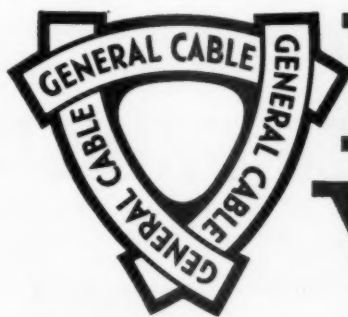
In one of the closed sessions, A. H. Gudie, secretary of the Electrical Contractors Association of Southern California, described the preliminary activities of that organization in making ready for operation under the code.

In the election of officers Lloyd Flatland, Globe Electric Works, San Francisco, was returned to the presidency with three vice-presidents elected to share in the tremendous labor connected with the position. These were named as Charles Langlais, San Francisco; George Draeger, San Francisco, and Walter Medley, Burlingame. The executive officers named were Frank Boyd, Oakland; C. B. Kenney, San Francisco; Clyde Chamblin, San Francisco; Roy Butcher, San Jose; H. H. Court-right, Fresno; Harry Eklund, San Rafael. Ed Martin, former president, was named secretary for another term.

On the administrative committee for the Northern Chapter to be submitted in nomination to the Code Authority the selection was as follows: Tom Harris, San Francisco; J. D. O'Connor, Sacramento; Les Poland, Eureka; Dan Bronson, Oakland; Curtis Hess, Fresno; Julius Schanbacher, Watsonville and Grov-



ANTIQUE WIRING: These antique wiring devices were removed from service in Ogden, Utah, less than two years ago. The large panel at the back is of wood on which are mounted old-fashioned porcelain fuse blocks with fuses in the circuit—some of them real fuse wire and some of copper wire. Leaning against this is another porcelain fuse block and some real antique snap switches. At the extreme left stands a glass insulator of the type of long ago. Reinspection would undoubtedly bring to light a considerable amount of equally antique wiring in buildings in which many hundreds of people were employed.



BUILDING WIRES and CABLES



N.E.C. STANDARD

Finished in six colors for color code identification of circuits.

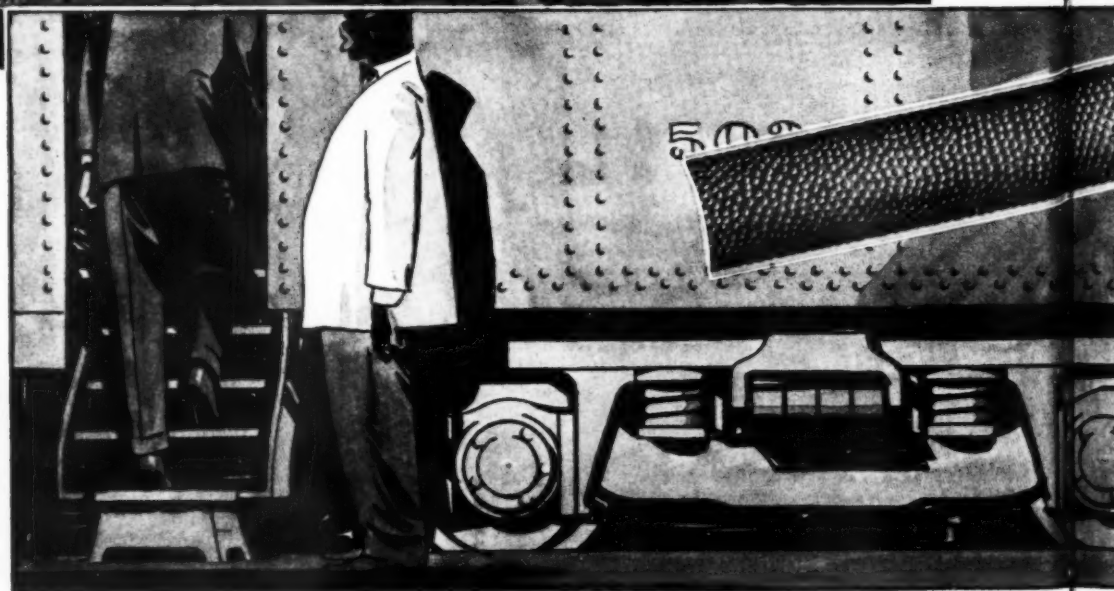
Color marked tags identify grade of insulation . . . CODE—black; INTERMEDIATE—red; 30%—green



GENERAL CABLE CORPORATION

OFFICES IN PRINCIPAL CITIES

ADAPTING AN OLD PRINCIPLE R



ELECTRICALLY



ELECTRUNITE

REG. U. S. PATENT OFFICE

THE REVOLUTIONIZES

Conduit wiring

CENTURIES ago, primitive man dragged heavy loads over the earth. Then came the wheel, bringing greater ease and speed to transportation, followed by the introduction of the ball bearing to further reduce the toll of friction.

For years, cables have been dragged through smooth conduits. Now comes ELECTRUNITE STEELTUBES with a new knurled inside finish in which cables ride over the tops of tiny ball-shaped projections, cutting down friction and saving effort and time. Tests have proved that this new finish actually reduces friction as much as 30 per cent.

ELECTRUNITE STEELTUBES is the modern threadless rigid conduit, light in weight, yet providing adequate electrical

and mechanical circuit protection. It is easy to handle, easy to cut, easy to bend and requires no threading—additional economy features. Three simple fittings adapt it to any job. It is approved by the National Electrical Code and for Government work. It may be used for all open and concealed work (except in cinder fill), for service conductors on exterior building walls and entering buildings, for voltages up to 600, and with conductors up to No. 4.

Write for a sample of this better-than-ever electrical metallic tubing. Even a casual examination will convince you that you should specify ELECTRUNITE STEELTUBES on all your future orders for rigid conduit.

Electrical Division

STEEL AND TUBES, INC.

WORLD'S LARGEST PRODUCER OF ELECTRICALLY WELDED TUBING

CLEVELAND • • • OHIO

A UNIT OF REPUBLIC STEEL CORPORATION



Steeltubes

NUMBER THREE OF A SERIES OF ADVERTISEMENTS



The

"CONTINUOUS PROCESS" insures absolute uniformity in FRETZ-MOON CONDUIT

FRETZ-MOON CONDUIT is always uniform—because it is made by an exclusive process that insures absolute uniformity. • This process differs from all other methods of manufacturing conduit in that it is continuous. The long strips of steel from which Fretz-Moon Conduit is made are welded together at the ends, so that actually Fretz-Moon Conduit is made from a long strip that ends only when the mill is stopped to change sizes. • This continuous strip travels through a specially designed furnace, as radically different from other furnaces as Fretz-Moon Conduit is different from other makes. It is a long, gas-fired tunnel through which the strip continuously passes, not on the floor of the furnace, where slag and silicious scale collect, but on water-cooled supports above the floor. Furnace temperature and rate of travel of the strip are automatically controlled—so closely that every foot of strip leaving the furnace and entering the forming and welding rolls is at the same definite temperature as every other foot. • There is not the slightest danger of over or under heating—therefore,

no hard or burnt spots to cause trouble in cutting, threading or bending—therefore, a perfectly uniform conduit. • Contractors who use Fretz-Moon Conduit know what uniformity can mean in installation time and profit.



STEEL AND TUBES, INC.
CLEVELAND • OHIO
EXCLUSIVE SALES AGENTS

FRETZ-MOON

**Rigid
conduit**

er Grider, Stockton. The delegate to the Construction League of California was H. C. Reid, of San Francisco.

Committee organization, modeled along the lines of the successfully operating San Francisco association, appointed at the opening of the meeting was designed to bring to contractors from other regions the benefit of the experience of the San Francisco branch in the setting up of local organizations and the operation of their activities. Committee chairmen were: Educational, Clyde Chamblin; data book, Bob Griffin; motor section, Frank Boyd substituting for Horace Adams; fixture men, Carl Severin; legislative, C. B. Kenney; N. R. A. code, H. C. Reid; administrative, Tom Harris; labor, Charles Shipman; public relations, F. O. Sievers and jobbers' relation, Vic Lemoge. Among the important resolutions passed was one committing members of the association to the policy of distribution embraced in the phrase "from manufacturer to wholesaler and from wholesaler to contractor."

TVA TO WIRE HOMES

Professor W. R. Wollrich, who is in charge of wiring plans for the rural territory served by the Tennessee Valley project, has reported to Harcourt Morgan in charge of the agricultural activities of TVA that beginning May 1 next one hundred homes per month will be wired for electricity.

HOLD ALL-INDUSTRY CONFERENCE AND ELECTRICAL EXPOSITION

A four-day meeting was held at the Shirley-Savoy Hotel, Denver, Colo., April 23 to 26, under the joint auspices of the Electrical League of Colorado and the Rocky Mountain Electrical Association. This meeting was an expansion of the usual annual state-wide gathering of the Electrical League of Colorado.

The first two days of the meeting were devoted to discourses and discussions covering merchandising and other subjects involving contractors, utilities, wholesalers, distributors and every class of dealers. The last two days were devoted to a series of meetings of the Rocky Mountain Chapter, I. A. E. I.

On Tuesday night, April 24, a spe-

G-E TIME SWITCHES



WIRE THEM

and Forget Them—They Use the Dependable Telechron Motor

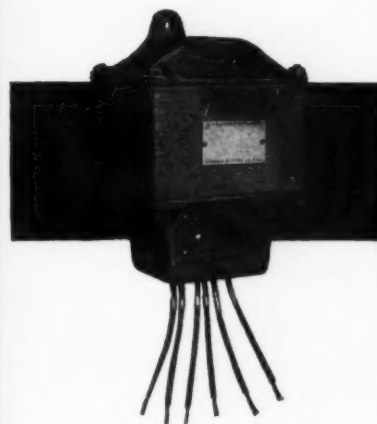
USE G-E time switches and you will find that you have no expensive maintenance and service calls eating up the profit on your time-switch installations. They are operated by the dependable Telechron motor, which has been performance-tested and time-proved.

The Telechron motor—self-starting and synchronous—requires no winding or regulating. Its operation is entirely automatic. This motor keeps time as accurately as though the time switch were geared to the power-plant generator.

You profit from every angle by selling G-E time switches—on the sale of the switch itself, on the installation, on minimum maintenance, on customer good will, and on quickly obtainable stocks.

May we tell you more about them? Call the nearest G-E sales office for further information, or mail the attached coupon.

CASH IN ON THIS NEW BUSINESS



HOW often small drills, compressors, vacuum cleaners, fans, and similar motor-driven equipment, and such shop appliances as soldering irons and glue pots, are connected to lighting mains!

This is not lighting load. By installing a small G-E air-cooled transformer for stepping down the voltage, these 115-volt devices can be operated from the power circuit. The saving in operating cost is considerable.

Now is the time to cash in on this new business. G-E air-cooled transformers are available for practically any application where a special voltage of 600 volts or less is required.

For further information call the nearest G-E sales office, or mail the attached coupon.

GENERAL ELECTRIC

General Electric Company
Dept. 6A-201, Schenectady, N. Y.

Gentlemen:

Time Switches

Air-cooled
Transformers



Please send me descriptive and application data on the products I have checked above.

Name _____

Firm _____

Street _____


City _____


State _____

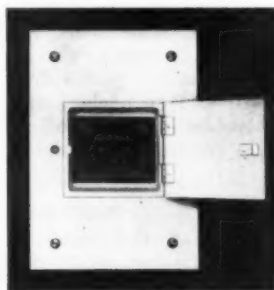
4 QUALITY PRODUCTS

for new homes or for home modernization

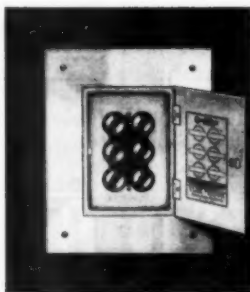



 **HANGER OUTLETS** for electrical connection and support of Fans, Clocks, Pictures or Ornamental Lighting decorations.

 **TYPE FBX Enclosed Cutouts** for the electrical center of distribution.




 **TYPE RPSF Flush Type Range Disconnect Switch.**

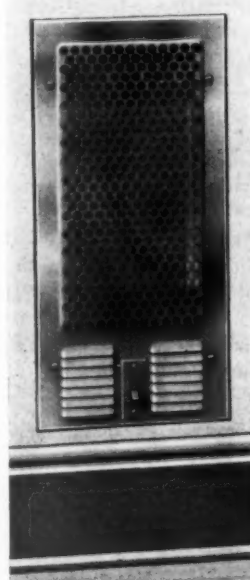


 **Electric QUIKHETERS** for auxiliary heating, will furnish quick, clean, safe and economical heat.

A year 'round necessity in the bathroom—a year 'round convenience in other rooms.

Flush type for mounting in walls or partitions.

Bulletins describing these and other  Products will be sent on request.



Frank Adam
ELECTRIC COMPANY
ST. LOUIS

cial conference of the contractors was held to discuss code problems which directly affect every individual member of this group.

In addition to the meeting, an electrical exhibit was held. Many new and novel appliances and equipment were shown, and new departures in the application of electrical energy. The exhibit also included a practical demonstration of yard and garden lighting under night conditions.

N. Y. ASSOCIATION ASKS FOR 10 PERCENT SERVICE DIFFERENTIAL

At the April 5 meeting of the New York Electrical Contractors Association, composed of the larger contractors in New York City, a resolution was adopted calling upon the manufacturers to recognize the sales services of the contractor through a differential of not less than 10 per cent and agreeing to place their orders with concerns that do so recognize the contractor. The resolution follows:

Whereas the members of this association are engaged in the business of electrical contracting and maintain executive organizations for the purpose of doing electrical work and selling electrical material in connection with installation service;

And whereas these members give their time, money and energy to the general improvement of the industry;

Now, therefore, be it resolved that we consider it unfair competition for manufacturers, wholesalers or jobbers to quote equal prices to those who do not perform similar services and who are not regular distributors of electrical materials.

We believe that we are entitled to a definite differential of not less than 10 per cent in appreciation of the services which we render the sellers of material and be it further resolved that the members of this association pledge their fullest support and will agree to place their orders for material with such concerns as are willing to agree to recognize this service by granting our members this protection.

MINNESOTA TO COORDINATE SALES PROGRAMS

A committee to develop a plan of coordinating the programs to develop business with the different branches of the industry was appointed at the Minnesota All-Industry Conference held at Minneapolis on April 13 and 14. The meeting was attended by approximately 200 people from different parts of the state and representing all branches of the industry.

The business coordinating com-

WEATHERPROOF**DUST-TIGHT!**

ON JOBS REQUIRING WEATHERPROOF SWITCHES, THESE BULL DOG TYPES IN FINE CAST ALUMINUM CABINETS WILL MAKE SATISFACTORY INSTALLATIONS AND SATISFIED CLIENTS FOR YOU!

Available in the following capacities. Data on other sizes furnished on request.

FUSIBLE-TYPE "A"

250V. DC—230V. AC			600V. DC—575V. AC		
2 Pole			2 Pole		
Amp.	Cat. No.	LIST	Amp.	Cat. No.	LIST
30	10221C	\$36.00	30	10261C	\$45.00
60	10222C	43.50	60	10262C	45.00
100	10223C	135.00	100	10263C	154.00
200	10224C	153.00	200	10264C	179.00
3 Pole			3 Pole		
30	10321C	\$37.50	30	10351C	\$47.50
60	10322C	45.50	60	10352C	47.50
100	10323C	145.00	100	10353C	158.50
200	10324C	172.00	200	10354C	191.00

NOT FUSIBLE-TYPE "A"

2 Pole 250V. DC			3 Pole 230V. AC		
Amp.	Cat. No.	LIST	Amp.	Cat. No.	LIST
30-60	13222C	\$35.50	30	13321C	\$36.50
2 Pole 600V. DC			3 Pole 575V. AC		
30-60	13262C	\$45.00	30-60	13352C	\$45.00
100	13263C	150.00	100	13353C	154.00
200	13264C	175.00	200	13354C	187.00

DISCOUNT SCHEDULE "F"

Safety Switches—Fusenters
 SUPERBA Lighting Panels & Cabinets
 SAFtoFUSE Feeder Panels & Cabinets



BUStrIbution SYSTEMS—SAFtoSWITCHBOARDS
 Kbl-DUCT—Trol-e-DUCT—Bus-DUCT
 Circuit Breaker Type Panels & Cabinets

BULLDOG ELECTRIC PRODUCTS CO.

DETROIT MICH. U.S.A.



WIREMOLD

"MONEY MAKERS"



Sell Outlets!

That's what the public wants!
Wiremold makes it easy!

The beauty of the Wiremold line is that it helps the contractor to meet sales resistance. With its five sizes—Catalogue Numbers 200, 500, 700, 1000 and 1100—and fittings to match—it gives him a choice of methods. He can give any customer a job that pleases—without muss or fuss. This makes sales and profits!

The Wiremold Company, Hartford, Connecticut



for the new
three light
Lamps

Reasonable
in Cost

An
Unusually
Wide Range
of Usefulness

Here is a new model in the reliable McGill Levolver Line of Switches—designed to control the two filament lamps. The size is exactly the same as the well known Levolver No. 61 switch. It incorporates the lever operating mechanism and the easy-to-wire features found in all Levolver switches.

The market for the new three-light-level, two-filament lamps is extensive, so you will find many opportunities to utilize this new No. 201 Levolver two-circuit switch. It will give you an opportunity to build up an additional volume of profitable business.

Write us for complete information and price on this new No. 201 Levolver.



Box No. 670

mittee will attempt to bring forth a plan whereby all branches will promote the same program at the same time. The conference was of the opinion that this would be much more effective than present sporadic, hit-and-miss methods.

CONTRACTOR DIFFERENTIALS IN SUPPLEMENTAL CODES

In a recent bulletin of the National Electrical Manufacturers Association relative to the establishment of differential to contractors, particularly on industrial sales, the following statement was made:

"Discussion recently arose in one of the product groups with respect to acting on requests of wholesaler groups that certain differentials be established to protect the contractors on industrial business. The question revolved around the establishing of special discount to contractors as against users in order to allow them to compete on certain classes of industrial sales.

"For a group to decide on such differentials and put them into effect would be contrary to the anti-trust acts. Where such differentials are desirable the way to provide for them is, in the opinion of Counsel Francis E. Neagle, by establishing provision for them in the supplemental code of the product classification."

LABOR AND SECURITIES BILL ADVERSE EFFECT ON RECOVERY

The Durable Goods Industries Committee elected at the request of General Johnson by the Code authorities of the several capital or durable goods industries, including construction, has reported to these code authorities that it had hardly started to work when it was faced with proposed legislation which, if enacted, would, in its opinion, seriously and adversely affect recovery in the durable goods market.

The committee referred to the Wagner labor bill and the Rayburn securities bill. In the committee's opinion a free flow of capital is essential to recovery in the durable goods market and that both of these bills would stifle investment. The labor bill would, in the opinion of the committee, cause such uncertainty of labor conditions that capital would hesitate to invest, while in the securi-

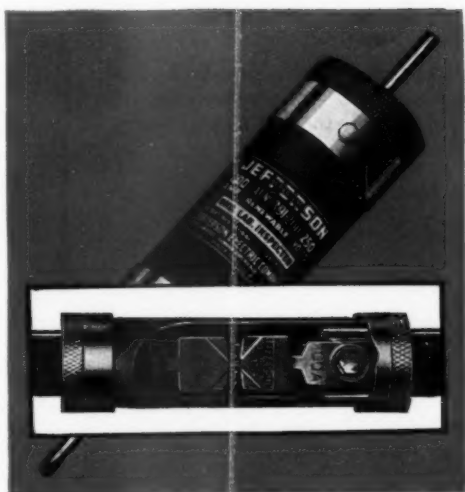


JEFFERSON Super-Lag Fuses Eliminate Needless Motor Shutdowns

Part of every factory is STOPPED every week. Some of the lost time is unavoidable but too much of it is needless. Increase your fuse sales by pointing out this way of reducing shutdowns.

Jefferson Super-Lag Renewable Fuses provide reliable *accurate* protection—riding over harmless, momentary surges,—operating positively on extended, dangerous overloads. There is no better protection for electrical equipment and property,—and no better way of preventing needless production delays.

The percentage of needless motor shutdowns and production delays decreases radically when Jefferson Super-Lags are used. Made in all capacities—knife-blade and ferrule types.



The secret of Jefferson Super-Lag performance lies in the lag plate which is a part of the Super-Lag link. This plate delays the normal fuse action, provides a time interval or lag. This time-lag prevents the fuse from blowing on harmless temporary overloads—saves needless shutdowns and link replacements.

JEFFERSON ELECTRIC COMPANY
Bellwood (Suburb of Chicago) Illinois

JEFFERSON

Super-Lag

RENEWABLE FUSES

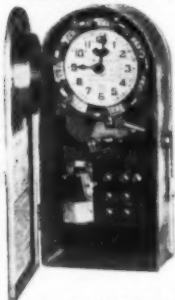
MERCOID CONTROLS



SENSATHERM

The outstanding thermostat for appearance and performance. Used with all types of electrical controlled heating equipment, such as oil burners, stokers, gas burners, air conditioners, and unit heaters. Also with electric heaters for maintaining uniform temperatures in incubators or for preventing freezing in pump or valve rooms. Extremely sensitive. Operates on a differential of 1 degree (plus or minus $\frac{1}{2}$ degree). The mercury switch used cannot be affected by dust, dirt or corrosive gases. Dual Type Sensatherm also available for heating and cooling and for day and night temperature regulation. Write for Bulletin No. 100.

TRIPLEX TIME SWITCHES



Available for numerous applications in both the domestic and industrial fields, such as day and night temperature control, regulation of temperature for a week in advance including week-end shut-down, for controlling lighting circuits in stores, windows, signs, or controlling the operation of electric heating equipment for type metal, glue or melting pots, pumps, blowers, battery chargers, etc. These switches are equipped with a Waltham movement—synchronous self-starting motor and mercury switch. Write for Bulletin No. 115 containing complete information.

WARM AIR FURNACE CONTROLS



These controls are primarily used with warm air furnaces for limiting the temperature where automatic fuel burning systems are employed or controlling booster fans and blowers, but have numerous applications in other fields. There are several types available to meet the respective requirements. These controls are easily installed and adjusted. They are equipped with a corrosive-proof mercury switch, thus insuring unflinching performance. An outstanding feature is the dial and pointer which indicates the temperature in the furnace hood. Write for Bulletin No. 230.

Mercoird Controls Are Distributed and Stocked In Many Cities By The Graybar Electric Co., Inc.

THE MERCOIRD CORPORATION

Sole Manufacturers of The Mercoird Switch
4923 Belmont Avenue - Chicago, Illinois

ties act the free choice of corporations in their financial transactions would be prevented acting again as a deterrent to investment.

NO CHANGE IN APPROVED RIGID CONDUIT

Rumors to the effect that Underwriters' Laboratories would approve rigid conduit of special make without enamel on the outside are unfounded according to a report from N.E.M.A. which states that A. R. Small, vice-president of the Laboratories, has advised F. C. Hodkinson, chairman of the technical section of the N.E.M.A. Rigid Conduit Section, that the Laboratories will continue to approve rigid conduit only in accordance with the standards for the product.

LIST OF APPROVED DEVICES BY ONTARIO COMMISSION

The latest list of electrical equipment approved by the Hydro-Electric Power Commission of Ontario, dated February, 1934, is now available in printed form.

N. Y. GROUP DEVELOPING WIRING MARKET

A program of activities designed to develop business for electrical contractors has been initiated by the Contractors' Group of the Electrical Association of New York, under the chairmanship of A. Lincoln Bush. Among the more important items are:

Contact with real estate interests to further electrical installations by licensed electrical contractors.

Contact with the commissioner of the department of Water Supply, Gas and Electricity and his subordinates on the establishment of fundamental policies of value to the industry.

Contact with the New York Board of Fire Underwriters and its officials on subjects of mutual interest and value.

Contact with the utility companies to clarify misunderstandings as they may occur.

Contact with manufacturers and wholesalers and others from which friendly discussions and improve-

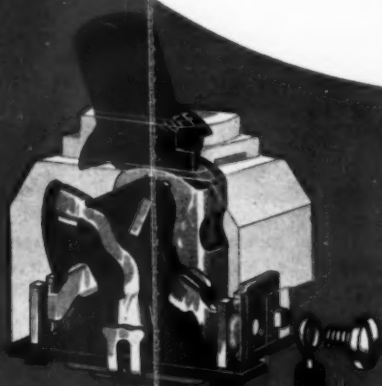


CERTIFICATE ISSUED TO ESTABLISHMENTS WITH CERTIFIED LIGHTING: The Electrical Association of Philadelphia has set up a plan, in connection with the "Certified Lighting Activity" now being conducted by the association, whereby all establishments in Philadelphia may have their lighting certified as being sufficient and comfortable for seeing, upon application to the association. If they meet certain minimum specifications, the association will award a certificate (shown above) and a bronze plaque to such establishments which they may use for advertising and goodwill purposes among employees and customers. The first step is to have certified lighting in the place of business of all members of the association, to whom an application card and letter has been sent. On receipt of the signed card from the applicant a survey of the premises is made by the lighting sales department of the utility, and if conditions are satisfactory certificate and plaque are issued. If conditions are not satisfactory suggestions are made and certificate withheld until the installation meets the requirements.

OUTSTANDING IN THEIR FIELD

The Improved P&S-DESPARD SWITCH

- When comparing old type porcelain cup switches with today's improved P&S Despard switch—the change is so marked that they seem to bear no relationship to one another.
- Its compact all bakelite body
- its improved arc-snuffing mechanism
- its ability to handle "Type C" lamp loads and its flexible application—all contribute much toward the modern switch efficiency so necessary in today's wiring plans.



Cat. No. 1311
PHANTOM VIEW
ACTUAL SIZE



Cat. No. 1555
ACTUAL SIZE

A New Socket FOR 3 LIGHT LAMPS

- that is compact in design—easy to wire and embodies the same basic features that have made the trade mark P&S famous the world over for porcelain sockets.
- Same length—same diameter as the regular P&S mogul socket
- two spring center contacts assure dependable operation.
- Available in three types—with $\frac{3}{8}$ inch cap—with $\frac{1}{2}$ inch cap and porcelain body only. Write for descriptive literature.

PASS & SEYMOUR, Inc.
Solvay Station Syracuse, N. Y.

MOTOR BRUSH REPLACEMENTS

*A Brush Kit
for Every Purpose*



Ohio No. 1 Kit for all small motorized appliances.



Ohio Vacuum Cleaner Service Kit No. 10.



Ohio No. 45 Kit for Refrigerator Motors.



Ohio No. 35 Kit supplies brush replacements on four popular makes of single phase motors.

See Your Jobber or write directly to

THE OHIO CARBON CO.
12504 Berea Road Cleveland, Ohio

ments in relationships can be expected.

The appointment of a permanent advisory council within the contractors' group to further suggest constructive activities which the group management committee can take under advisement and present to the group as a whole.

The development of wiring business throughout the Borough of Manhattan, and subsequently in all boroughs, through the direct canvass by contractors of some 5,000 or more premises now believed only partially and in some cases totally unwired.

The advisory council referred to as been appointed and consists of Louis Freund, chairman, and J. J. Bauer, Hans Brockmuller, W. J. Wheeler, Paul V. Dooley, Benjamin Reiss, Nathan Simpson, George J. Scholl, H. M. Smith and L. I. Waldman.

Cards giving addresses and owners' names of premises in Manhattan believed to be only partially and in some cases totally unwired, have been distributed to such members as expressed a willingness to undertake a direct canvass of these with a view to securing wiring business. Approximately 5,000 such premises exist in Manhattan alone. The result of this initial solicitation on modernization will determine the extension of the program to the other boroughs.

WESTCHESTER CONTRACTORS FORM ASSOCIATION

In order to have fair representation under the N.R.A. electrical contractors' code, the electrical contractors of Westchester County, New York, have formed the Master Electricians Association of Westchester County, with an enrollment of 100 members. The officers of this new organization are Nelson L. Costello, president; S. Silver, vice-president and C. G. Carlson, secretary and treasurer.

MINNESOTA CITIES PREPARING FOR CODE ENFORCEMENT

One hundred percent organizations in preparation for enforcement of the electrical contractors' code are reported from the following cities in Minnesota:

Faribault, Duluth, Winona, Red Wing, St. Cloud and Albert Lea.

Fargo, N. D., also reports 100 percent organization.

MOTOR DEALERS ASK FOR BETTER DISCOUNTS

The Motor Section of the Northern California Chapter, N. E. C. A., at its meeting on April 7, adopted a resolution petitioning the national association to request the National Electrical Manufacturers Association to adopt a policy of developing discounts commensurate with the dealer's cost of doing business. The resolution follows:

Whereas, it has been the practice of electrical manufacturers to establish retail prices and discounts on equipment without due consideration of the motor dealers and their cost of doing business, and

Whereas, this practice is in the nature of imposing regulation of the dealers business without due and proper representation, and

Whereas, the retail prices and discounts to which the motor dealers must conform because of the direct retail sales by manufacturers forces the motor dealers into the position of selling below cost, and

Whereas, the electrical manufacturers accord larger discounts from retail prices to other classes of buyers whose sole livelihood is not in the electrical industry, and

Whereas, the codes now give the manufacturers protection against sales below cost, it would be consistent for the manufacturers to cooperate with the motor dealers to the same end.

Therefore, Be It Resolved, by the Northern California Chapter of the National Electrical Contractors Association in convention assembled at Sacramento, California, this 7th day of April 1934, that the officers of the National Electrical Contractors Association petition the National Electrical Manufacturers Association to adopt a policy of developing discounts commensurate with the dealers cost of doing business.

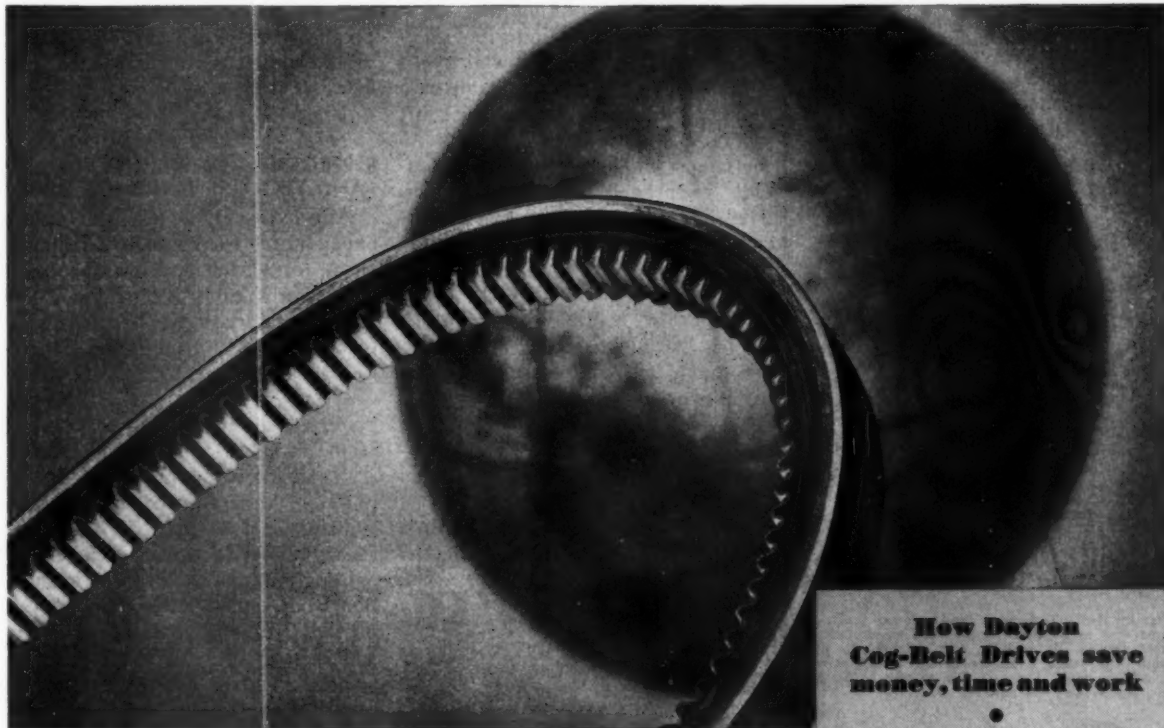
Be It Further Resolved, that such cooperation on the part of the National Electrical Manufacturers Association would be in keeping with the spirit of present day practices and conducive to more aggressive selling efforts on the part of motor dealers and to more harmonious relations in the electrical industry.

FORD BUILDING DESIGNED AROUND LIGHTING EFFECTS

Unlike most buildings wherein the lighting is designed to fit the structure, the Ford Exposition Building at the 1934 World's Fair in Chicago was designed around the lighting effects.

The most sensational lighting effect will be a torch of light, 200 ft. broad at its base, which will spring from the parapet of the open court, developed through the concentration of 24 thirty-six-in. projector searchlights, with a 30,000,000 candle power. Under proper atmospheric conditions,

ONLY ONE V-BELT DRIVE IN THE WORLD LIKE THIS



Patented construction of Dayton Cog-Belts gives outstanding advantages

Here are some quick facts for quick reading about Dayton Cog-Belts—facts verified by leading engineers in a "thousand" different industries.

These Belts are utterly different from any other made. They're built to bend. The patented cog section and laminated construction enable Dayton Cog-Belts to flex naturally and easily around even the smallest pulleys—without distortion, buckling or rippling. This permits shorter center-to-center couplings and saves valuable floor space.

And since the sides are die-cut—not molded—Dayton Cog-Belts have greater gripping power at any speed. There's no slipping or sliding—less tension is required—and there's less wear on bearings.

Furthermore, the "stretch" is

removed in the process of manufacture—adjustments are seldom necessary. And a patented reinforcement gives extreme crosswise rigidity which prevents squashing in the pulley grooves. *Thus the Dayton Cog-Belt is the only V-Belt combining maximum flexibility and crosswise rigidity.*

In addition to providing these numerous operating advantages these exclusive and patented construction features are responsible for the longer life of Dayton Cog-Belts—belt replacement costs are often cut in half.

These are only the high spots. Send for information—without cost or obligation.

THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO.

*Factory Distributors in Principal Cities
and all Westinghouse Electric and
Manufacturing Company Sales Offices*



Dayton

COG-BELT DRIVES

Also manufacturers of Dayton Fan Belts . . . Dayton Red Tube Radiator Hose . . . and the famous Dayton Thorobred Tires and Tubes

How Dayton Cog-Belt Drives save money, time and work

- 1—Save floor space.
- 2—Built-to-bend—no distortion—no internal heating.
- 3—Greater gripping power—no slipping or sliding.
- 4—Stretch removed—fewer adjustments necessary.
- 5—No dressing or lubrication.
- 6—Less tension required—easy on bearings.
- 7—Longer life—belt replacement costs often cut in half.
- 8—Quiet—Clean—Rugged.

*Complete drives—pulleys and belts
—in stock. Fractional to 100 H. P.*



*Investigate the
exceptionally
low cost of
Dayton Cog-
Belts with*

DAY-STEEL PULLEYS

PROFIT BY USING GREENLEE TOOLS

THE greater the efficiency of the tools you use, the more chance you have for meeting competition and for making a profit on each job. That is where Greenlee Conduit Benders and Knockout Tools come in. They cut costs on every job where they are used.



Hydraulic Conduit Benders

Greenlee Hydraulic Conduit Benders insure profits because they bend conduit quicker and easier than by other methods. In addition, they make smooth, even bends, eliminating many fittings and making it easy to pull in wire. They are easy to take to the job, too, because they are portable.



Knockout Tools

Greenlee Knockout Punches and Cutters make it easy to enlarge holes in switch boxes, cabinets, etc. They form clean-cut holes quickly and accurately, without any reaming or filing.

Other Tools

Hydraulic Pipe Pushers

Joist Bore

Bit Extensions

Electrician Bits

Let Us Send Complete Information

GREENLEE TOOL CO.
ROCKFORD ILLINOIS

GREENLEE TOOL CO.
ROCKFORD, ILLINOIS

Please send complete information on the following
☐ Conduit Benders
☐ Knockout Tools

Name _____

Street _____

City _____

State _____

My jobber is _____

5-34

the torch of light will rise to the height of one mile.

Some of the spectacular features of lighting are a 20 ft. globe, depicting the Ford world, illuminated by concealed lighting; four panels of lighting on the exterior of the outer court, totaling 22,000 ft. of lighting units, each lineal foot containing one 200-watt blue lamp, one 150-watt green lamp, and one 100-watt red lamp with dimmer equipment. Within the court will be 428 lineal ft. of lighting, with the lamps similarly arranged to provide remarkable tints and shades. The dimming equipment for the entire mobile lighting installation weighs 12½ tons and requires 20 miles of wiring.

The project will have 100 miles of electric wiring, more than 250 electric motors, a lighting display which includes a battery of more than 9,000 concealed floodlights shifting in kaleidoscopic patterns, and an amplifying system containing more than 750 loudspeakers.

It is estimated that 4,000 kilowatts will be required for lighting and

2,000 kilowatts in power load. The power load will include 75 motors for building operation and more than 150 in the various exhibits of the industrial section of the building.

An amplifying system will require 250 master loudspeakers with probably 500 or more auxiliary speakers. So that there will be no blare, none of the master speakers will be over 3 watts in capacity.

5 PERCENT FOR WIRING SUPPLIES AND FIXTURES IN REMODELING

Approximately 5 per cent of the expenditures for house remodeling is spent for wiring supplies and lighting fixtures exclusive of labor and appliances, according to the results of the 1933 National Better Homes Contest conducted by *Better Homes and Gardens*.

More than 18,000 entries were received in the 1933 contest. Entrants spent all the way from a few dollars to \$17,000, the average amounting to something more than \$1,400. The average spent for wiring supplies and lighting fixtures, exclusive of installation labor, was \$72.00. The analysis of the figures gave no data on installation cost. The maximum amount spent by a single entrant on electrical equipment was \$2,200.

The expenditures for wiring was both in the installation for new rooms and in the furnishing of additional outlets. In some cases the number of outlets was increased as much as 50 per cent.

It was hoped that an analysis of the entrants would indicate some definite trends in lighting design, but such did not develop.



INSULATION NOTCHER: To notch the thousands of feet of No. 12 stranded wire used in the wiring of the 2 by 1½ in. raceways installed on the Exposition buildings at the Chicago World's Fair Grounds the necessity for a good tool to do the job was very apparent. Jack Hutchings, foreman for the E. P. Allison Electric Co., Inc., after a little experimenting developed a tool that looks like a pair of pliers. The head of this tool is made of tool steel, with five knife blades that come in contact with the wire insulation. One blade seen running between the "V's" at the left of the head cuts the center of the insulation lengthwise while the other blades cut at each end of the notch around the complete circumference of the wire insulation. When the tool goes through the insulation a little twist of the wrist up and down loosens the insulation after which it is easily picked off.

SHORT CUT METHOD FOR FIGURING BUSBAR CAPACITY

James M. Evans, electrical engineer, Board of Fire Underwriters of the Pacific, in discussing electrical engineering for the inspector at the southern California chapter, I. A. E. I., recently, gave a very simple formula for the calculation of the carrying capacity of rectangular busbar. Since a bar of copper 1 in. square is rated to carry approximately 1025 amp. and since a square inch divided in 32nd of an inch contains 1024 square 32nd of an inch, therefore each square 32nd of an inch carries approximately 1 amp. Thus, if the cross-section of a busbar is

CUTLER HAMMER Safety Switches



Worthy of their Pedigree

For almost forty years C-H engineers have met the electrical problems of all Industry. Their work has made the C-H trademark famous all over the world . . . the mark of outstanding quality in Motor Control.

Of such experience, quite naturally, was born a superior line of Safety Switches . . . marked by the famous C-H insignia. A complete line of standard, weatherproof and explosion-proof switches—each built to the needs of its service—built to the needs of electrical people—built to the standard expected of Cutler-Hammer engineers. Easy to sell, easy to install, dependable and economical to use. Complete stocks are carried by responsible independent wholesalers. CUTLER-HAMMER, Inc., *Pioneer Manufacturers of Electric Control Apparatus*, 1306 St. Paul Ave., Milwaukee, Wis.

CUTLER HAMMER

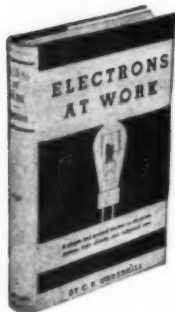


Meter Entrance Switches: Cutler-Hammer also manufactures a comprehensive line of Meter Entrance Switches to meet the varying requirements of different localities. Write for catalog.



B-225

NOW READY— What the electron is; how it works



For student, engineer and general reader this book presents a clear, simple explanation of the intricacies of electronics — tells, in everyday language as far as possible, what electrons are, how the various tubes and cells function in harnessing them, and how these devices are applied in industry and biology.

ELECTRONS AT WORK

A Simple and General Treatise on Electronic Devices, Their Circuits and Industrial Uses

By Charles R. Underhill
Consulting Electrical Engineer

354 pages, 6 x 9, 220 illustrations, \$3.00

THE book purposes to guide those interested in the tremendous possibilities of electronic devices and to stimulate manufacturing executives and engineers to grasp the opportunities presented.

It outlines fundamental principles,

- describes the known characteristics of electrons,
- tells what an electronic tube is and how it functions,
- discusses the three fundamental circuit-phenomena of electronic tubes,
- treats of electronic tube circuits and their applications,
- describes electronic lamps and suggests their possibilities,
- takes up gaseous-discharge tubes,
- discusses the various types of photoelectric cells and their characteristics,
- shows the general methods of using photoelectric cells for automatic control, regulation, testing, counting, sorting and grading, measuring, recording, etc.

The book also includes chapters on Cathode-ray tubes, on invisible light and on X-rays.

The treatment throughout is as simple as is possible without sacrifice of accuracy; mathematics and complex circuits are almost entirely avoided. The index offers a complete glossary-guide for reference.

See it 10 days on approval—send this coupon

McGraw-Hill Book Company, Inc. 330 West 42d Street, New York City, N. Y. Send me for 10 days' examination, subject to approval or return, Underhill—Electrons at Work. At the end of 10 days I agree to pay \$3.00 plus a few cents for postage and delivery, or return the book postpaid. (We pay postage on orders accompanied by remittance.) Name Address City and State..... Position CompanyEC-5-34 (Books sent on approval in U. S. and Canada only).	
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calculated in square 32nd of an inch, the total will give the carrying capacity in amperes, at 1 amp. per 32nd.

REGULATIONS FOR INSTALLING OIL BURNERS

The regulations of the National Board of Fire Underwriters for the installation of oil burning equipment which became effective on April 1, 1934, is now available in printed form.

PITTSBURGH CHAPTER MOVES INTO LARGER QUARTERS

With increased activities of the Western Pennsylvania Chapter, N. E. C. A., and the substantial increase in membership, it was found neces-

sary for the chapter to move its offices to larger quarters. The offices are now located in the Fulton Building, Pittsburgh, Pa.

One of the major activities of the chapter is the study of a new proposed city ordinance for Pittsburgh in order to establish and maintain proper standards for electrical work.

A. A. DORFMEIER

A. A. Dorfmeier, president of the Fresno (Cal.) Association of Electrical Contractors, died of pneumonia at his home on April 7, 1934. Mr. Dorfmeier was very active in the affairs of the association and was building it to a strong unit in the northern California N. E. C. A. chapter organization.

LOOKING BEYOND THE CONSTRUCTION FIELD

by A. Lincoln Bush, Chairman

New York State Association of Electrical Contractors and Dealers

The "Radio and Sound" field during the past year has enabled many contractor-dealers to transform the red in their balance sheet to black, and has given new heart and life to a business in which many of us have spent our lives.

First we sold bell, telephone, burglar alarm, gas lighting and some electric light wiring, and then into the field of light and power we transferred our activities, equipping both old and new buildings and homes. Then came the depression with the decrease in new construction and a lack of desire on the part of the public to spend money except for those things that had a strong appeal.

In our line, "Sound" that saved the "movies" also opened up a new and profitable field for the electrical contractor.

We had been looking for something that would mean the selling of material and apparatus with a tie-in of installation so that it could be considered properly in the electrical contractor's line. The public's increased interest in "Sound" together with the co-operation between contractors and manufacturers, has opened up a splendid field for the live-wire contractor.

We have found that we cannot make owners build, and we cannot always convince owners and tenants that they ought to increase lighting,

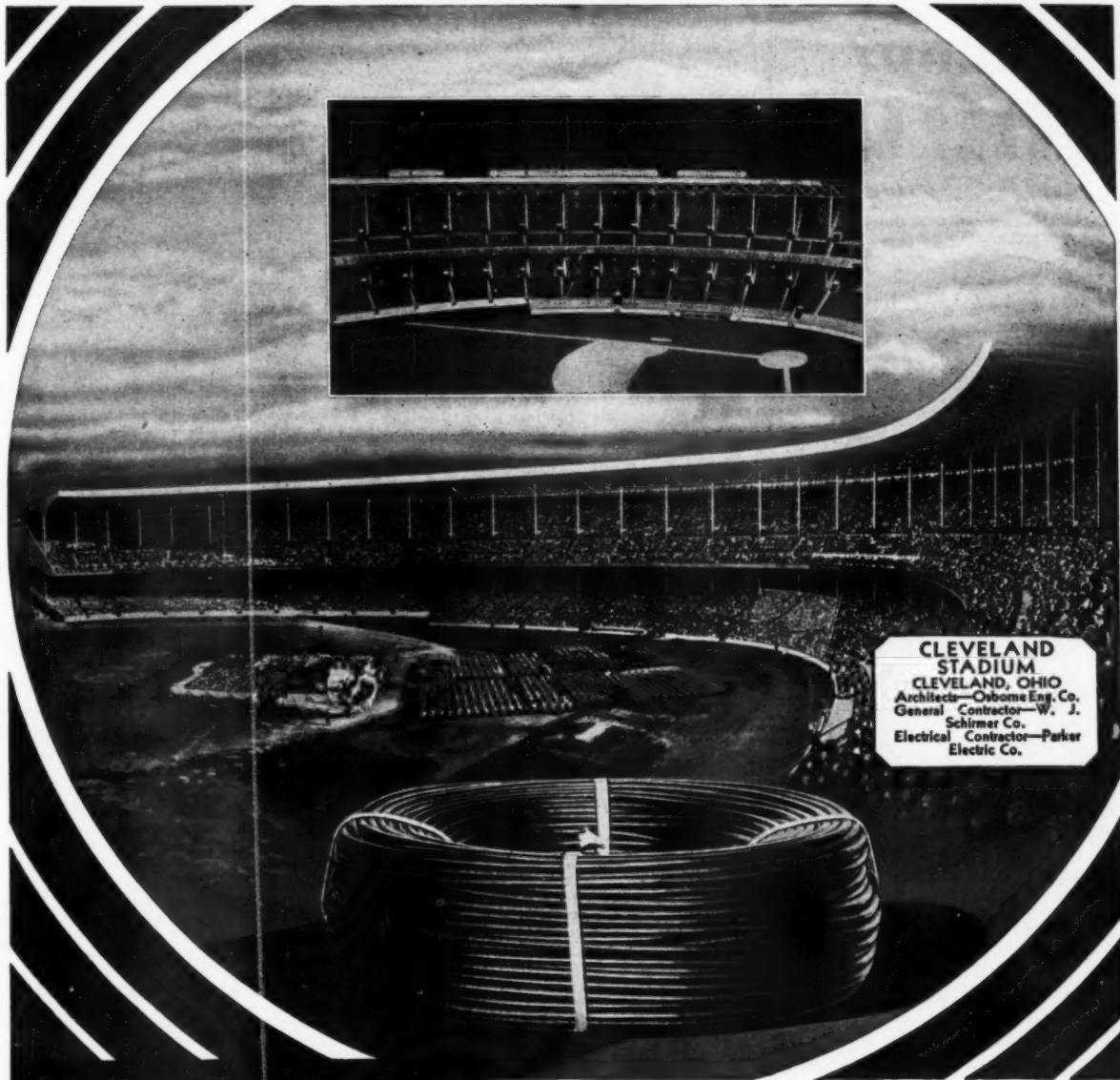
although some success has been obtained along these lines, but radio in the homes, and sound pictures in the theatres, have set a new standard for our ears of today.

When you stop to realize the numerous applications of sound through centralized radio installations, public address systems, and other applications that the contractors can furnish and install in hospitals, prisons, institutions, halls, auditoriums, churches, hotels, apartment houses, banks, restaurants, cabarets, clubs, schools, industrial plants, amusement parks, armories, country clubs, summer resorts, camps and many other places too numerous to mention, you should be convinced that this field is a field worth cultivating.

The desire for better radio reception gives us another fine opportunity of installing antenna systems, which from a single aerial on the roof will bring proper radio reception to an unlimited number of rooms and apartments in a building.

When we stop to consider what an important part of the home radio is today, we must realize that it isn't hard to sell anything that will make reception better and more pleasing to the listeners.

Our members in the metropolitan district who have been working along these lines during the past year, are



CLEVELAND STADIUM
CLEVELAND, OHIO
 Architects—Osborne Eng. Co.
 General Contractor—W. J. Schirmer Co.
 Electrical Contractor—Parker Electric Co.

AMERITE 30% RUBBER COVERED WIRES

Floodlighted — For Swift Play

Architects and engineers recognize that *modern lighting demands modern wiring*. In the Cleveland Stadium, floodlights strategically located give practically daylight brilliancy to every section of this great athletic field.

Amerite Rubber Covered Wires and Cables serve a vital part in this unique lighting system. They have been used exclusively for distribution of the entire electrical load.

Amerite is a 30% "Performance Test" Rubber Compound which possesses, in addition to inherently high electrical qualities, unusual "Aging" Properties and Resistance to water absorption. It is the choice of the country's leading architects, engineers and contractors. Specifications will be furnished on request.

1831



1934

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago
 94 Grove Street, Worcester

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 AND ALL PRINCIPAL CITIES

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No Solder!



*Installed
in a minute
with only a wrench*

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new...
2 TOOLS IN 1
IDEAL

**Combination TEST-LITE
and FUSE PULLER**

Used daily to test, remove, or insert fuses from 30 to 100 amperes. Tests circuits of from 110 to 550 volts. Handles "live" parts safely—adjusts loose cut-out clips, etc. Made of reinforced bakelite—plier-like design—test pins mounted on handle ends—test light enclosed in handle—pocket size.

Get the complete facts and low prices on this handy time saving device. Send the coupon, NOW!

Ideal Commutator Dresser Co.

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Ideal Commutator Dresser Co.,
1041 Park Avenue, Sycamore, Ill.

Send us additional facts and prices on the

☐ Ideal Combination Test-Lite and Fuse Puller.

☐ Also on Ideal Fuse Reducers, Fuse Clip Clamps and Fuse Pullers.

Name

Address

City State

enthusiastic and believe that we have at last struck a profitable line of endeavor.

**ANALYSIS OF MOTOR DRIVE
CONDITIONS**

Before selecting motors for installation in industrial plants there are certain fundamental data which should be known in order to secure the best results. An analysis of this data which appeared recently in one of the publications of The Louis Allis Company, Milwaukee, Wis., breaks down this data into an easy form to follow. Then with a knowledge of the characteristics of the different types of motors it should not be difficult to make the best selection from the standpoint of reliability and operating results.

The analysis follows:

1. CURRENT AVAILABLE

(a) Direct—

Voltage

(b) Alternating—

Voltage

Phase

Frequency

(c) Possible variations in voltage or frequency

(d) Source of energy—

Central station

Isolated plant

(e) Nature of other loads on same line. (to determine effects of starting)

2. DESCRIPTION OF DRIVEN MACHINE—

(a) Continuous or intermittent service

(b) Possibility of arrangement of intermittent service machines for other than simultaneous operations for group

(c) Speed range

3. METHOD OF DRIVING—

(a) Individual or group drive

(b) Direct-connected

Coupling — insulated —flexible

—rigid

(c) Provision for accommodation of motor—

Standard motor

Special shaft

Sub-base or bracket

Special motor frame or end-

bell

Shaftless frame type

Rolled shell shaftless (in-

built)

Omission of either end-bell

(d) Belt Drive—

Size pulleys

Center distances

Idlers

(e) Chain Drive—

Size pinion or sprockets

(f) Gear Drive—

Size pinion

(g) Friction Drive—

Method of applying load

4. LOAD CONDITIONS—

(a) Continuous or intermittent

(b) Cycle of duty — where a definite cycle repeats itself with regularity the machine stopping between cycles

(c) Varying load in which a definite cycle repeats itself but the motor operates continuously

(d) Load diagram required over one complete cycle of operation—in other words — maximum and minimum horsepower—duration of load—time load is off—friction load

(e) Possibility of advantageously varying the cycle of operation

(f) Variation in load brought about by a change in operating conditions of driven machine. Allowance in motor size for such contingency

(g) Future requirements — possibility of an increased load of the driving motor in the future and increase in speed or additional fly-wheel effect

5. STARTING CONDITIONS—

(a) Frequent starting and stopping—approximate time on and off

(b) Reversing service — number of times per minute or per hour—time off and on

(c) Acceleration in weight and speed of rotating parts—time required to accelerate—character of load during acceleration

6. SPEED—

(a) Constant speed

(b) Adjustable speed

(c) Variable speed

(d) Requirements for close regulation

(e) Speed range

(f) Constant horsepower or constant torque—load

(g) Variation in speed by variable voltage or frequency

7. CONTROL—

(a) Hand or automatic

(b) Remote control

(c) Overload and under-voltage protection

(d) Type of overload device

(e) Limit switches

(f) Electrical or mechanical brakes

8. CONDITIONS OF LOCATION

(a) Dust

(b) Moisture

(c) Acid fumes

(d) Inflammable material

(e) Temperature of location

(f) Ventilation

(g) Space allotted to mounting of motor—Method of mounting and accessibility for inspection and repairs

(h) Provision in motor and control arrangement for safety requirements

(i) Insurance rules

**RADIO INTERFERENCE FROM
JAPANESE LAMPS**

Discovered as a result of extensive radio interference inspection in the vicinity of Pomona, Cal., by Frank McMahon, building and electrical inspector of that city, is a phenomena caused in inferior imported lamps. Where Japanese lamps are burned at any position aside from the vertical, due either to a leakage in the lamp or to the fact that the lamp in manufacture does not have enough of what the lamp companies here call "getter" to remove deposits of free tungsten, a discharge of tungsten occurs in the neck of the lamp which builds up a condenser effect, and upon discharge feeds back over the line, causing radio interference.



• Fairbanks-Morse pioneered many of the standards of the present day motor. To these are now added new features which still make F-M Motors the greatest value you can offer your customers.

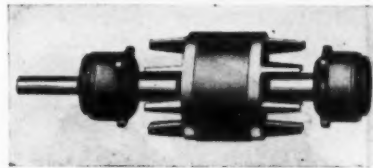
Today the pioneering still goes on—pioneering to create the standards of the industry of tomorrow. But F-M pioneering is an *exact* pioneering! It is a developed method of building motors better *mechanically*—building them better to serve longer at lower maintenance expense — and hence to help you sell.

These motors meet the most exacting electrical specifications. But

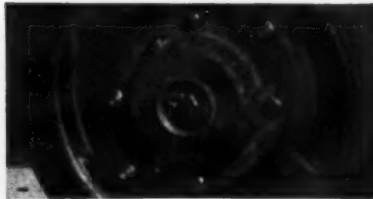
with characteristic thoroughness, Fairbanks-Morse has achieved a position of leadership in *mechanical* construction.

Fairbanks-Morse pioneered *mechanical* excellence in electric motors. It pioneered *ball bearings*, *grease tube lubrication*, *one-piece rotor construction*.

Pioneers in motor building progress, Fairbanks-Morse asks only an investigation of how much *more* these motors have to offer. Start your investigation by writing for full information. Address Fairbanks, Morse & Co., 900 S. Wabash Avenue, Chicago, Ill. 32 Branches at your service throughout the United States.



Complete rotor assembly with cartridge-type sealed ball bearings. Note rotor winding is of one-piece construction.



Lubricate sealed ball bearings once a year with tube contained lubricant. Bearings, dust-tight. No lubrication drip.



Group wound coils—an entire phase group in a single piece of wire—lead connections from each group welded, not soldered or brazed.



Sealed-in leads through frame opening—anchored permanently. No chance for strain on field leads.



Slot insulation — self locking by means of cuff construction — permanent and additional protection for field windings.



Final vibrometer test —one of a series to insure a smooth running motor with minimum vibration.

Pioneer
Designers
and
Manufacturers
of
104 Years



FAIRBANKS-MORSE

MOTORS

POWER, PUMPING AND WEIGHING EQUIPMENT

6086
EA40.53



Sell Ventilation

SALES and installation opportunities for ventilating are better than they have been for years. Hotels and restaurants are enlarging and improving their facilities. Tap rooms and grills are multiplying. Stores are improving their premises.

With Diehl Ventilating and Exhaust Fans you can handle any ventilating job at a good profit.

For all kinds of installations, there are Diehl Fans to provide practically silent operation . . . exceptionally large air delivery . . . variable speed . . . vertical mounting and all other features required by various applications.

Write for the new Exhaust and Ventilating Fan Installation Catalog and, if you wish, details of the Diehl Sales Plan to the Diehl Manufacturing Company, Elizabethport, New Jersey. District Offices or Sales Representatives located in Atlanta, Boston, Chicago, Columbus, Dallas, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco and St. Louis.

DIEHL MANUFACTURING COMPANY
Electrical Division of
THE SINGER MANUFACTURING COMPANY

DIEHL FANS

NEWS MANUFACTURERS

A DEPARTMENT FOR THE ANNOUNCEMENT OF ACTIVITIES OF MANUFACTURERS THAT ARE OF INTEREST TO CONTRACTORS, SUCH AS CHANGES IN EXECUTIVE PERSONNEL, BRANCH OFFICES, NEW PRODUCTS, ETC.

TO INVESTIGATE STANDARDS FOR BATTERIES AND FLASHLIGHTS

In order to have general standards for dry batteries, dealing not alone with structure but also with regard to performance, shelf life and service life, the Standards Committee of the Dry Batteries and Flashlights Section, N.E.M.A., has been instructed to investigate the possibilities of setting up these standards. It is believed that progress can be made in establishing general standards for products which will facilitate activities under the code, particularly with relation to marketing provisions, fair trade practices and trade arrangements under them. It is further believed that such standards would prove a favorable factor in proper cost determination.

The committee is expected to report at an early meeting its recommendations.

Bulletin No. 1003 listing explosion-proof unilets for use in hazardous locations has just been issued by Appleton Electric Co., 1701 Wellington Ave., Chicago, Ill.

STAUD HEADS PORCELAIN ENAMELING CODE AUTHORITY

The Porcelain Enamel Institute announces that Rudolf W. Staud has been named chairman of the supplementary code authority of the porcelain enameling manufacturing industry. Mr. Staud is assistant to the president and sales promotion manager of the Benjamin Electric Mfg. Co., Des Plaines, Ill., and also president of the Porcelain Enamel Institute.

In addition to these activities, Mr. Staud is chairman of the code com-



R. W. Staud

mittee of the Industrial Lighting Subdivisions of NEMA, member of the code committee of the Floodlighting Sub-division of NEMA, chairman of the publicity committee of the Illuminating Engineering Society and a director of the Fabricated Metal Products Federation.

A 32-page illustrated book, entitled "Westinghouse In the World of Lighting," has recently been issued by the Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa.

Floodlighting, bridge and street lighting, signs, commercial lighting, industrial lighting, aviation field lighting, fountain lighting, swimming pool and stadium lighting and home lighting are illustrated.

Russell & Stoll Co., 53 Rose St., New York City, has published bulletin No. 66 on explosion-proof electrical specialties. The bulletin contains illustrations, specifications and price-lists on junction boxes, switches, circuit breakers, panelboards, magnetic starters, receptacles, plugs and lighting fixtures.

SMALL OUTSIDE LARGE



*See the Open Space for
Easy Wiring! A Full 1 1/8"
Behind the Panel; Ample
Room at Top and Bottom*

THE "50,000 Series" Square D switches have now been shown to the leading industrial plants and have met with an enthusiastic reception. That is the best indorsement of quality.

Contractors have been quick to realize that here is a switch designed to simplify their wiring difficulties. Small outside dimensions and front operation make installation easy in any practical location. The large open space at the back and all sides of the box makes wiring simple. No threading of wires nor danger of pinching. The entire switch mechanism is removable by loosening four screws. Knockouts on all four sides and back.

The new positive pressure contact construction reduces heating 60%. Copper blades are reinforced by resilient, rust-resisting steel springs. The switches are "Quick make" and "Quick break," have complete interlock and Square D Positive Pressure Fuse Clips.

Attractive appearance, small mounting dimensions, ample wiring space and Square D quality!

Small wonder contractors have so rapidly and completely accepted the Square D "50,000 Series."

The New Square D Switch
"50,000" Series

- ... Gives More Space
- ... Saves Wiring Time
- ... Lowers Costs
- ... Improved Contacts—
Always Cool



SQUARE D COMPANY

SWITCH AND PANEL DIVISION
DETROIT, MICHIGAN, U. S. A.

BRANCH SALES OFFICES IN ALL PRINCIPAL CITIES

May New Products

Circuit Breaker

Type "H" Sentinel circuit breaker for use on appliances or apparatus driven by small motors is announced by Bryant Electric Co., Bridgeport, Conn. Breaker has quick make and quick break and trip free of the handle. The time lag



feature, when properly applied, permits sufficient time delay to start small motors with starting current high in ratio to full load current, and also permits such a motor to carry momentary overloads without disconnecting it from line. Breaker is so designed that heater units may be readily interchanged so that a breaker of any desired rating may be obtained by using the recommended heater unit in breaker. Unit may also be used as a convenient switch simply by moving handle to the position marked "On" to start the motor and to the position marked "Off" to stop motor. Breaker housing is made of a glossy black heat resisting material, which is of high dielectric strength and is an excellent insulating medium.

Time Switch

Paragon Electric Co., Van Buren & Dearborn Sts., Chicago, Ill., announces type G time switch with a self-starting synchronous motor, self-lubricating with gears housed in dustproof die-cast shell. Movements contain 4 heavy cut brass wheels and steel pinions. Other fea-



tures are a removable dial with no friction slips between dial and motor; skip trip which provides for manually turning circuit on and off at any time ahead of automatic setting; molded bakelite and bronze switch with silver contacts; fast make or break; approved for 1600 watt, a.c. single pole, single throw, single pole, double throw or any special 2-circuit type. Case is No. 16 ga. pressed steel with 6 replaceable knockouts providing for entering through sides, base

or back and continuous panel hinge at base with nickel plated hasp at top. Unit is 8 in. high by 4 in. wide by 3 in. deep, and case is finished in black crackle lacquer with all movement parts and face nickel plated.

Brush Seater

A brush seater for seating carbon, graphite or metal-composition brushes is announced by Ideal Commutator Dresser Co., Sycamore, Ill. Each brush is seated under actual operating conditions, without shutting down the ma-



chine. Brush seater is a soft, slightly abrasive insulating material of fine texture. To operate just hold brush seater at heel of brush and press down on brush. Friction from revolving commutator or ring releases brush seater material which is carried under the brush. Standard size is 4 3/4 in. long by 1 1/4 in. wide by 5/8 in. face.

Metal Extension Duct

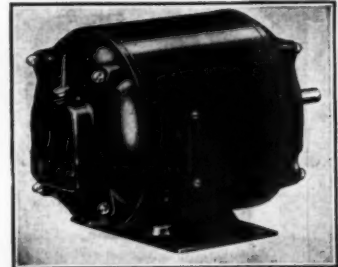
A metal duct for extending existing outlets, known as Baseduct, is announced by American Circular Loom Co., Inc., New York City. It is designed



for extension of a circuit only, and therefore takes 2 No. 14 wires which are laid in the duct and cover snapped on. Duct is finished in a neutral brown or mahogany and manufacturer states it can be changed easily to any color by one coat of quick drying enamel.

Split Phase Motor

An improved split phase motor of steel field ring construction is announced by the Emerson Electric Mfg. Co., St. Louis, Mo. Motor is compactly designed and has extra large wool-packed oil reservoirs. Direction of rotation is reversible by reconnection of leads in outlet box. A.c. and d.c. frames are interchangeable. Unit has special alloy bearings in which oil grooves distribute oil over entire bearing surface. Both bearings have overflow oil returns on both ends which return all surplus oil direct to oil reservoirs. Both end covers have four flush mounting bosses, which



permits mounting blower housings and similar equipment directly on motor covers, using the four motor studs and cover nuts for fastening. Stator is of laminated steel construction; rotor is similarly made of laminated punchings, held together by copper conductors and assembled under hydraulic pressure and pressed on motor shaft; cast iron end covers are assembled to steel field ring by machined cover fits, and base on rigid motors is welded to steel field ring.

Bell-Ringing Transformer

A newly designed and improved Wizard bell-ringing transformer with a secondary of 10 volts, suitable for op-



erating doorbells, buzzers and door openers used in the average home is announced by Jefferson Electric Co., Bellwood, Ill. The housing is of one-piece construction which makes an attractive and substantial appearance.

Sign Transformer

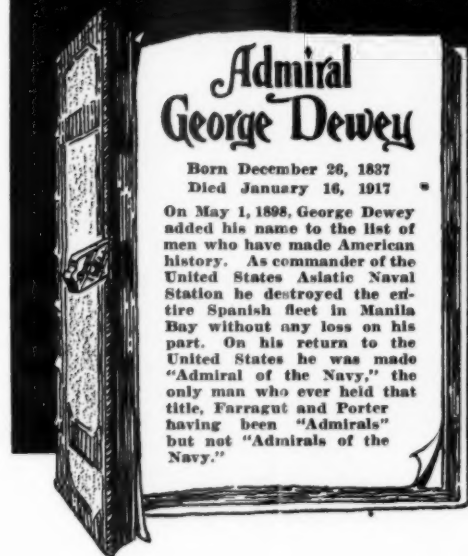
Reynolds Electric Co., Chicago, Ill., announces the Reco neon sign transformer enclosed in a moisture-proof, double seal edge, black enameled case. Some of the features of the transformer



are ample wire and core sizes, machine assembled and riveted core laminations, radio noise proof and standard base dimensions which provide convenient replacements. Unit can be furnished in standard binding post type, standard lead type, window type or high power factor type.

Electrical Contracting, May, 1934

names



that have made history

COLT NOARK SWITCHES



The Colt-Noark line of Safety and Meter Switches has captured the favor of electrical men because of its dependability and salability. The Colt-Noark line is daily making sales history in the electrical field because Colt's has always devoted itself to the manufacture of *quality* products that *SELL*.

Remember this—the Colt-Noark line is complete. There is a switch for every need from meter service to motor starting.

Contractors intent upon making sales history with a history-making line should write for information TODAY.

COLT'S PATENT FIRE ARMS MFG. CO.

Pioneers of Protection Since 1836

ELECTRICAL DIVISION  HARTFORD, CONN.

Boston

Chicago

New York

Philadelphia

Pacific Coast Representative: H. B. SQUIRES CO. — SAN FRANCISCO, LOS ANGELES, SEATTLE

May New Products

Indicating Cutouts

A line of porcelain plug and cartridge cutouts with Neon lamp indicator known as Fuse-O-Lite indicating cutouts is announced by L. S. Brach Mfg. Corp., Newark, N. J. The line completely parallels the present line of plug and



cartridge, 30A, 60A and 100A porcelain cutouts as well as 600V, and made in the same size, with identical mounting holes so as to be interchangeable. Some of the features of the cutouts are indication given with or without load on circuit; indicator permanently built into porcelain cutout, and indicating parts cannot be removed. When a fuse blows a Neon lamp glows indicating where blown fuse is and by inserting a new fuse the light is put out. Cutouts are furnished in green porcelain.

Industrial Signal

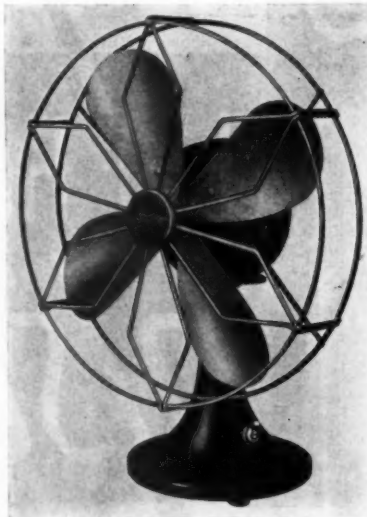
A calling device designed for use on any kind of signal system, using any kind of current, and recommended for code calling use in industrial plants has been placed on the market by Federal



Electric Co., 8700 South State St., Chicago, Ill. The unit located at switchboard and connected into the signal system provides 30 separate codes to call any of 30 different people. Operation consists of setting the dial and pushing down on the plunger. Each code is repeated three times, automatically, by one setting of the dial. Unit is supplied in green crackle lacquer and furnished with rubber foot pads and cord and connector.

Fan

Signal Electric Mfg. Co., Menominee, Mich., announces an induction 10 in. fan built in straight and oscillator types for a.c. 110 volts, 60 cycles only. Mo-



tor is a Signal 2-pole 2-coil center drive. Fan has cast iron base, aluminum blades, cadmium rust-proof guard and one-speed toggle switch, and is of black satin finish. On the oscillator type the gears are enclosed and lubricated.

Sentinel Breaker

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., announces type H sentinel breaker for the protection of fractional h.p. motors. Unit is available in single and double pole types, and is enclosed in a moulded case, the only exposed moving part being the operation handle. All metal parts are of non-corrosive metals or metals which have been cadmium plated. Breaker protects against burnouts which might be caused by low voltage, locked rotor or overload conditions when driving appliances such as washing machines, iron-



ing machines, fans, blowers, etc. Self-protecting feature of breaker is obtained by the combination of bi-metal and auxiliary heater and proper proportioning of the parts. Unit is trip free and cannot be held in an "on" position while an injurious overload exists. In addition the breaker is also a convenient switch, with quick make and break mechanism. All thermal units are interchangeable and may be replaced by removing two

screws. Resetting of thermal latch is accomplished by moving breaker handle to the end of travel in the "off" position and then to "on" position. Nineteen ratings of thermal elements are available ranging from 1.4 amp. to 14.2 amp. for protection of fractional h.p. motors with full load amp. ratings between 1.1 amp. and 12.9 amp.

Splash Proof Motors

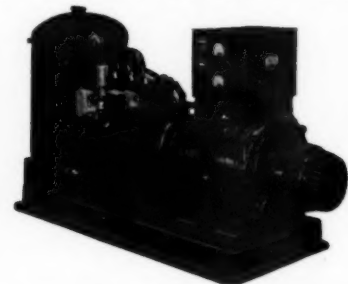
A line of splash proof motors recommended for use in packing plants, laundries, breweries, paper mills, etc., has been placed on the market by Marble-Card Electric Co., Gladstone, Mich.



Motor is fully enclosed excepting for small openings on lower side of each end plate which are so designed that splashing or falling water cannot enter motor. A cooling system makes it possible to use same frame sizes for splash proof motors as for open type motors of equal rating. Motor is manufactured in both single phase and polyphase squirrel cage types up to 30 hp.

Oil Burning Generator Sets

D. W. Onan & Sons, Minneapolis, Minn., announces a line of oil burning generating plants made in five sizes, in either a.c. or d.c. Standard construction is a.c. 110 or 220 volt, single or three-phase. Unit is completely assembled on



a steel base utilizing rubber inserted coupling and can be set on any solid floor and does not require a heavy, deep-dug concrete base. Unit has a Hesselman cycle oil engine, which is a compression, magneto ignition, injector type of engine, furnishing 2½ h.p. for each kw. generator output. Generators used on a.c. plants are standard alternators with revolving field and excitors built in, operating on large self-aligning ball bearings, fan-cooled and liberally rated at 40 deg. temperature rise.

Electrical Contracting, May, 1934



for
CONTRACTORS
WHO BELIEVE TODAY'S
SELLING METHODS ARE
OUT OF DATE

..THE FUSE CHECK BOOK

The Fuse Check Book is no performer of sales miracles. It is simply a new selling device adapted to 1934 conditions.

Industrial plants today are not interested in new wiring or electrical equipment unless you can show that it will prove a profitable investment through savings in operating costs.

That's where the Fuse Check Book comes in. It makes it easy to keep accurate records of fuse renewal costs and, what is more important, time lost by men and machines every time a

fuse blows. Such records have shown many plant executives that hundreds, and in some cases thousands of dollars can be saved annually with *fuseless* circuit protection—made possible by Westinghouse Nofuze Circuit Breakers.

Get your prospects to use the Fuse Check Book. Then bid for a *fuseless* wiring job. We'll wager that you'll land some profitable contracts. Send coupon for Fuse Check Books.

Westinghouse

Nofuze
 Circuit Breakers



SEND FOR CHECK BOOKS

Westinghouse Electric & Manufacturing Company
 Room 2-N East Pittsburgh, Pa.

We have been looking for an idea like this. Without obligation, send Fuse Check Books and promotional material.

Name

Company

Address.....T 85013

City.....State.....EC 5-34

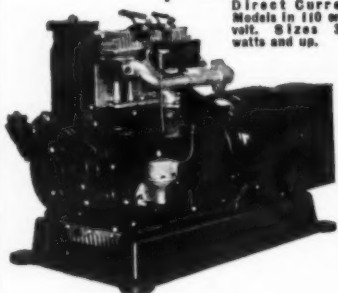
A. C. ELECTRIC GENERATING PLANTS

The Sale of
MODERN
A. C. PLANTS
brings calls for
WIRING,
FIXTURES,
APPLIANCES,
and
EQUIPMENT

ONAN ALTERNATING CURRENT PLANTS operate on Gasoline, Gas or Distillate. COMPLETE, READY TO RUN. Built in sizes 300 to 50,000 watts. Supply 110 or 220 volt, 60 cycle, single or three phase current. For use where power lines are not available. For stand-by equipment, Public Address and Sound Car Installations.

Operate A. C. Radio Washing Machines, Water-Pumps, Refrigerators, Motors, or any equipment operated from city current can be run on ONAN A. C. PLANTS.

D. C. Models
as Low as \$59.00
Direct Current
Models in 110 or 32
volt. Sizes 300
watts and up.



Write for Details

D. W. ONAN & SONS

288 ROYALSTON AVE., MINNEAPOLIS, MINN.

Keep Up-to-Date

By reading these pages you will acquaint yourself with what is newest and best in electrical supplies and equipment. When communicating with an advertiser mention

Electrical Contracting



"Standardize on
STANDARD
Transformers"

ALL TYPES
Indoor and
Outdoor
Service

Send for
Descriptive
Bulletin

STANDARD TRANSFORMER CO.
Warren Ohio

HARVEY C. POND

Harvey Clark Pond, vice-president of the Arrow-Hart & Hegeman Electric Co., Hartford, died of heart failure on April 12 at Tampa, Fla., at the age of 47.

Mr. Pond was a graduate of Trinity College in the class of 1908, and



H. C. Pond

joined the Arrow Electric Co. of Hartford in 1909. He soon became sales manager and was made general sales manager under the merger of that company and the Hart & Hegeman Manufacturing Co. in 1929. A short time later he was appointed to the board of directors of the Arrow-Hart & Hegeman Electric Co. and was elected vice-president in charge of its sales.

Westinghouse Lamp Co., New York City has just published three lighting check charts for checking lighting in homes, stores and factories. The light-o-graph chart is for checking the lighting in the home; industrial lighting chart enables the plant engineer to make a speedy survey of his lighting installation, and the commercial lighting chart assists the merchant to check his lighting installation to see if the lamps are of proper wattage and producing adequate intensity.

A merchandising proposal on carbon brushes has been published by The Ohio Carbon Co., Cleveland, Ohio. The proposal contains a copy of catalog No. 19A, which lists motor brush replacements for fractional

horse power, single phase, refrigerator, repulsion induction, vacuum cleaner, farm light plant, barber and beauty shop equipment, hand tools, constant potential chargers; a pamphlet showing the merchandising features of Ohio carbon brushes; a sheet showing circulars used in direct mail, and charts showing the markets for electrical merchandise sales, 1931, 1932 and 1933—review and forecast.

General Electric Co., Schenectady, N. Y., has published two bulletins, one GEA-1520B superseding GEA-1520A, entitled "Electric Heating Units and Devices," covering G-E Calrod immersion heaters, G-E Cart-ridge units, G-E strip heaters, miscellaneous Calrod heating units, Calrod cast-in hotplates, metal-melting pots, gluepots, industrial air heaters, soldering irons, and control equipment. Bulletin GEA-77F superseding GEA-77E entitled "Improving Power-Factor for Profit," covers G-E capacitors, pyranol-treated.

John C. Dolph Co., 168 Emmett St., Newark, N. J., has published a new product application chart designed to serve as a guide in the selection of the proper varnish from a group of insulating varnishes known as Dolph's Electrical Insulating Quartette for industrial and motor repair shop insulating and finishing requirements.

Continental-Diamond Fibre Co., Newark, Del., has published a 24-page catalog covering "Micabond," which is a bonded mica insulating fabric. The catalog is illustrated and contains properties, sizes and specifications of Micabond plate, specifications of Micabond paper, cloth, tape, fish paper, cellophane, press-board, etc., Micabond tubing, "V" rings, segments, as well as information on Diamond fibre, Diamond fibre receptacles, Celoron silent gears, Dilecto and Celoron silent timing gears.

All-Steel-Equip Company, Aurora, Ill., has just released Catalog B-34 covering outlet boxes and covers, handy boxes and covers, concrete boxes and plates, all types of cable boxes, Jay-Kay boxes and J-K clamps, "Reddy-Sets" and hangers, switch boxes, bracket boxes and extended ear boxes. Full descriptions and illustrations are given for each unit.

DREADNAUGHT

Type "S" & "SJ"

PORTABLE CORDS AND CABLES

"Cured in Lead"

DREADNAUGHT cable meets the demand for a heavy duty flexible cable which will give a longer and more satisfactory life on the job. The extreme flexibility of Dreadnaught is secured by the high grade rubber and very fine wires used in its construction. There is no braid on Dreadnaught to absorb dirt, grease, lint, etc., and it will not kink or tangle at any time.



The copper conductors of Dreadnaught cable vary in number according to the size of the cord. All conductors are of flexible bare copper wires, stranded and cotton wrapped, covered by a 40% highest quality rubber insulation. The two conductors are twisted with strong textile fillers, adding greatly to the tensile strength. The outer belt is of a 60% high grade rubber—"Lead Cured."

The use of Dreadnaught cable gives unusual freedom from repairs and replacements and will deliver current continuously, no matter how tough the job. Dreadnaught is foolproof and kinkproof—give it a tough job and it will deliver 100%.

Dreadnaught cord is especially recommended for use with all power driven tools and equipment which are either stationary or portable.

There is a size to fit all needs.

PARANITE WIRE & CABLE CORP.

JONESBORO, INDIANA

Division of

ESSEX WIRE CORPORATION

DETROIT,

MICHIGAN



"IF IT'S PARANITE IT'S RIGHT"

DEALERS WANTED!

**Every Range Owner in Your Town Is
Worth Up to \$15 Quick Profit for You!**

Do you want to make some money easily?
Do you want to line up repeat business?
Do you want to increase your weekly sales?
You are the dealer we want. If you are
willing to call on range owners, show
them an item they want to buy and NEED
—then you are in for some extra profits.
No selling necessary. Just call on elec-
tric range users, show them the NEW
Chromalox Super-Speed REPLACEMENT
TOP BURNER. Let them use it and try it
for a few days. Demonstration of increased
cooking speed gets orders 8 out of 10
times.

Sounds too good to be true, but hundreds
of dealers are making money speeding up
old ranges with Chromalox. Easily in-
stalled—only screw-driver and pliers
needed! No large investment involved.
A few stock sizes fit all makes of electric
ranges, regardless of model.



Here's Proof

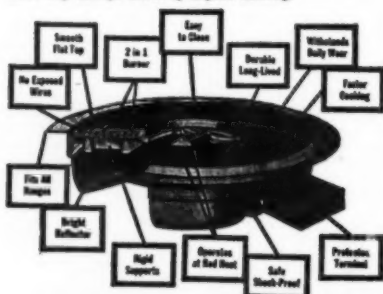
Alex Bear, Richmond, Va., elec-
trical contractor has sold 165
Chromalox range units—made
over \$360.00 profit.



Correll Electric has practically
Chromalox-equipped every range
in Linton, Indiana—resold cus-
tomers on electric cookery.

J. E. Heaps of Altoona, Pa. has
made over \$500.00 speeding up
old ranges with Chromalox. Dem-
onstration quickly gets orders.

**By TEST...Faster, More Efficient and Longer Live
than Any Range Units of Equal Rating!**



MAIL COUPON FOR FULL DETAILS

WITH YOUR BUSINESS LETTERHEAD TODAY!

EDWIN L. WIEGAND CO.
Manufacturers of Chromalox Heating Units
7585 Thomas Blvd., Pittsburgh, Pa.
Without obligation, send us complete data about
Chromalox Super-Speed Replacement Range
Units and how we can make money selling
them. There are approx. elec. ranges in
the territory we serve. Check which () We sell
elec. ranges () We do not sell elec. ranges.
() Send us catalogs about Chromalox-equipped
electric ranges.

Signed..... Position.....

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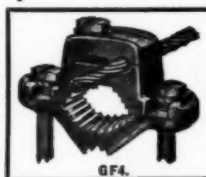
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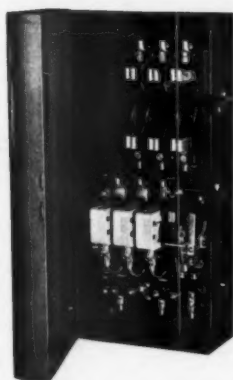
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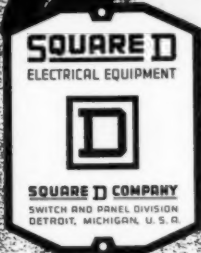
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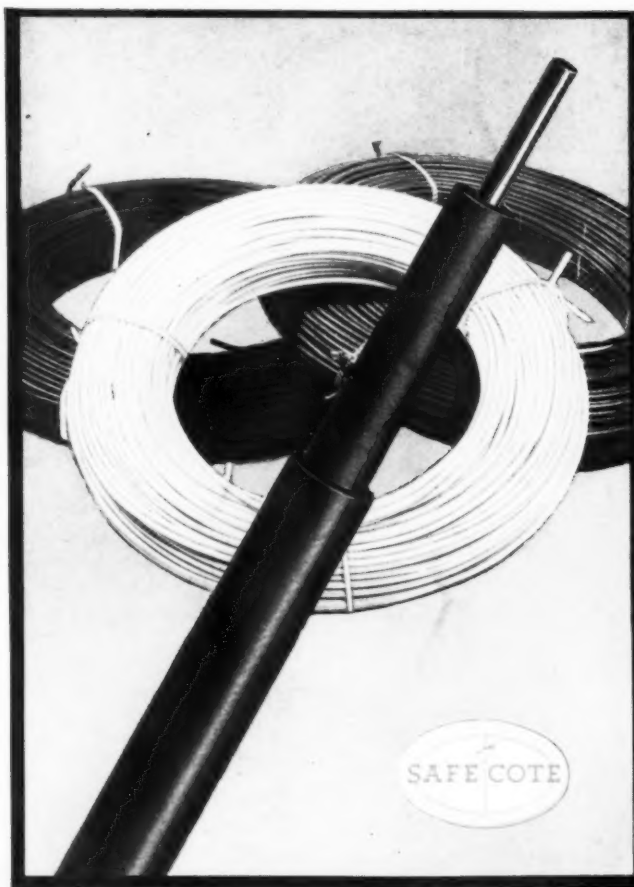
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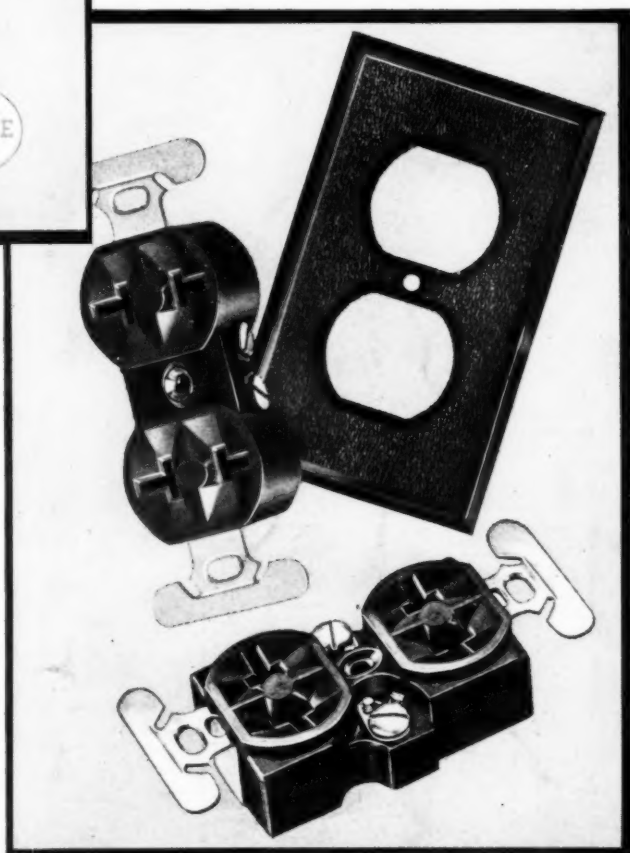
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